GL 616.995
HOL

110729
LBSNAA

स्त्री राष्ट्रीय प्रशासन अकादमी
l Academy of Administration
मसूरी
MUSSOORIE
पुस्तकालय
LIBRARY

110729

अवाप्ति संख्या
Accession No. ~~11807~~
वर्ग संख्या
Class No. 616·995
पुस्तक संख्या
Book No. Hol

TUBERCULOUS INTOXICATIONS

To

The Memory of

Professor ANTONIN PONCET

TUBERCULOUS INTOXICATIONS

CONCEALED AND MASKED TUBERCULOSIS

A CLINICAL STUDY

BY

JOSEPH HOLLÓS, M.D.,
PATHOLOGIST OF ST VINCENT'S HOSPITAL, STATEN ISLAND,
NEW YORK

EDINBURGH
E. & S. LIVINGSTONE
16 AND 17 TEVIOT PLACE
1928

Made in Great Britain.

THE AUTHOR'S PREFACE

THIS book is a substantial enlargement of my earlier book, "The Tuberculous Intoxications," published in Budapest in 1909, which also appeared in French in Paris, 1910, with a preface by ANTONIN PONCET. I consider it worth the while to publish this preface in an English translation, partly because of the esteem I have for the memory of the late great French physician, and partly because this very preface points out the important fact that we arrived at identical results by different methods, each ignorant of the other's researches. Our common conception is that in the majority of cases tuberculosis does not present itself in its manifest customary form, but remains concealed and has the appearance of anæmia, neurasthenia, thyrosis, hysteria, epilepsy, neurosis, rheumatism, dysmenorrhœa, neuralgia, rachitis tarda, etc.

I arrived step by step through the application of specific treatment at the tuberculous origin of the symptoms and syndromes, dealt with in my book. In the beginning—for about a year—I worked with the dualistic tuberculin method —Tuberculosis and Perlsuchtvaccine—taken over from CARL SPENGLER; during the last nineteen years I have been working with his immune blood.

Eighteen years have passed since the appearance of my first book, which was deemed worthy by the Académie de Médicine of Paris of the thousand francs Audiffred prize in 1911. I have had to ward off many attacks and overcome much lack of understanding and indifference until the publication of the present volume. I am satisfied, nevertheless, that my statements of eighteen years ago, no matter how revolutionary they seemed in the face of numerous medical dogmata, were proved correct. The purpose of my present book is to make generally known this new conception of tuberculosis.

The case histories referred to in my book are, with a few exceptions, from my practice in Europe.

JOSEPH HOLLÓS.

NEW YORK CITY,
February 1928.

PREFACE TO THE FRENCH EDITION

In this preface I should like to present to the French medical world "The Tuberculous Intoxications" and state my appreciation of the work of Dr Hollós.

It was by a fortunate coincidence that I came in touch with the eminent physician of Szeged. We were both concerned with the same problems without knowing it. By different methods we arrived at the same conclusion—at new conceptions of the pathogenic rôle of tuberculosis, a rôle much wider than was generally believed.

This conformity of view was revealed to us by the chief of my clinic, Dr G. Cotte, who was the promulgator of this French translation of the Hungarian book. He was occupied with the part of the tuberculous toxins in the etiology of dysmenorrhœa and, guided by bibliographic footnotes, he addressed himself to Dr Hollós.

Since then our distant collaboration with our foreign colleague, which was unknown to us until that time, has been strengthened by the knowledge of our reciprocal researches: now these researches support each other.

While we have constantly found since the founding of our clinic in 1897, tuberculous rheumatism of the joints, inflamed tuberculosis and, with Leriche, still find the polymorphism and the several manifestations of the latter, Dr Hollós in his turn has arrived at similar conclusions by different paths. Experimentation and actual therapy helped him in the study of a great number of pathological syndromes of undetermined nature and unknown origin.

By a well-judged employment of the tuberculins, vaccines, and especially immune blood, he has established the etiological diagnosis of a great number of conditions which he can combat successfully by a specific treatment—immune blood.

If by a treatment one can judge the nature of a sickness, seldom has a treatment given greater certainty than the one Dr Hollós employs with his patients.

This will be found when reading the sixty detailed clinical observations related in his monography. These observations have amazed us by their simplicity and sincerity, and proofs and clinical facts are such that one naturally subscribes to them, just as to the tuberculous intoxication that causes them and to the marvellous effect of the treatment of immune blood.

The forms of tuberculosis in question are not progressive ones with more or less characteristic symptoms. These diseases are latent, fruste, attenuated—synonymous adjectives which are arbitrarily employed. We might term it "little tuberculosis"; we have often spoken of it. Diathetics, arthritics, neuropathics, neurasthenics are names commonly given to "little tuberculosis."

It confirms in its way the recent doctrine of an aspecific tuberculosis, the tuberculosis with a double modality: tuberculous septicæmia or tuberculosis without visible lesions, and inflamed tuberculosis or tuberculosis with lesions without specificity, without anatomical signs which do not present more than the reactionary characteristics of a banal inflammation.

For these various reasons the very interesting work of Dr Hollós deserves to be known in France. It will astonish many of us, it will shock others, it will convince some; but this is of no importance. The sower does not hope that all the seeds he sows will come forth, but this does not affect the crop.

ANTONIN PONCET.

LYON, 9*th May* 1910.

CONTENTS

CHAP. PAGE

The Author's Preface v

Preface by Professor Antonin Poncet . . vii

I. Tuberculous Immunity 1

II. Endocrine Disturbances 14

III. Neurasthenia 27

IV. Rheumatism 37

V. Neuralgia 50

VI. Thyrosis 55

VII. Epilepsy 64

VIII. Dysmenorrhœa and other Menstrual Disturbances 72

IX. Psoriasis 80

X. Gastric and Intestinal Disturbances . . . 84

XI. Other Symptoms 93

XII. Prognosis 111

XIII. The Immune-Blood Treatment 116

XIV. Conclusions 126

References 128

Index 130

Chart 119

TUBERCULOUS INTOXICATIONS

CHAPTER I

TUBERCULOUS IMMUNITY

Infection and Latency. Infection in Childhood. Concealed Foci. Inherited and Acquired Immunity. Hypersensitiveness. Symptoms and Syndromes of Intoxication. Disposition. Post-mortem Proofs.

THE tubercle bacilli, with only a few exceptions, reach the subject through the mucosa of the organs of respiration, less frequently by bowels, without infecting the mucosa itself, their portal of entry. The bacilli, arriving at the lymph circulation, pass through the lymph channels and go from there to the blood stream, where, after a certain time, they localise most often in the lymph nodes. The bacilli not infrequently remain here in a latent state without producing tubercles. In the lymph nodes of non-tuberculous subjects that have come to autopsy without any macro- or microscopical finding of tuberculosis, bacilli have been detected in a great many cases by means of the inoculation of guinea-pigs. PIZZINI (1) demonstrated positive results in 42 per cent. of cases. But the Great White Plague sets in only after the histological changes produced by the bacilli begin to appear.

The primary focus develops, for the most part, in the regional lymph nodes, which are, in the order of their frequency, the peribronchial, peritracheal, mediastinal, cervical, and mesenteric lymph nodes. It is more uncommon in other regions. Quite frequently, we find these tuberculous nodes in a more or less incipient stage in the bodies of children that have come to the autopsy. During the age of adolescence, these foci show secondary changes, and in adults they are so greatly cicatrised that microscopical examination is necessary for diagnosis. Living bacilli are often detectable through animal inoculation in most of these lymph nodes.

The infection occurs primarily in childhood; and to show this frequency of early infection, I introduce the statistics of two eminent specialists in Vienna.

HAMBURGER described tuberculosis as a secondary finding in 617 autopsies of children where tuberculosis was not the cause of death :—

4·5 per cent. at the age of 1.
17 ,, ,, ,, 2.
30 ,, ,, ,, 3 to 4.
34 ,, ,, ,, 5 ,, 6.
53 ,, ,, ,, 11 ,, 14.

And PIRQUET, by means of his cutaneous reaction, found tuberculosis among 613 seemingly healthy children :—

3 per cent. at the age of 1.
13 ,, ,, ,, 2 to 4.
17 ,, ,, ,, 4 ,, 6.
35 ,, ,, ,, 6 ,, 10.
53 ,, ,, ,, 10 ,, 12.

Both the above statements are founded on pre-war figures. Later investigations have revealed the percentage of infected children in Vienna to be much higher.

But if we select children in whose families there has been tuberculosis in manifest forms, nearly all of these over 5 years of age prove infected.

It was discovered in Nancy (France) among 267 such children that :—

42 per cent. were tuberculous under the age of 2.
82 ,, ,, ,, ,, ,, 5.
91 ,, ,, ,, over this age.

On the other hand, among children of non-tuberculous families, it was discovered that :—

None were infected under the age of 2.
8·7 per cent. were infected at the age of 5 to 10.
57 ,, ,, ,, ,, 11 ,, 16.

From the previous statistics alone, one can easily understand why, in adult cases, 80 to 90 per cent. of the subjects that come to autopsy present evidence of having been infected with the Koch bacilli.

These investigations prove indubitably that infection is exceedingly prevalent, but only a small percentage of those infected become manifestly tuberculous and, of this small percentage, the greatest number is consumptive. Most cases are healed, or their disease remains latent or concealed. This stage will often be interrupted by more or less manifest symptoms, *i.e.*, by pleurisy, hæmoptysis, or a cough varying in duration and intensity, sometimes after a cold or influenza ; and then a latent period may recur, lasting for months or years, just as it does in syphilis.

During this latent period the tuberculous process may not only be localised in the lymph nodes, but the infection in the lungs may also remain in its primary stage, when it is very difficult to detect, and may cause few or none of the pulmonary symptoms. With regard to the frequency of the occurrence of this process, I refer to the investigation of Naegeli, who found evidence of tuberculosis in the lungs of 71 per cent. of his adult autopsies.

The tuberculous process in the lungs begins on the mucosa of the smaller bronchi, in the alveoli themselves, or in the lymph vessels about the bronchi. It stops entirely after reaching a certain size, or else it progresses very slowly. These foci are to be found at autopsy in the following forms :—

1. Quite healed, in the form of cicatrised or calcified small nodes or nodules.

2. In the form of encapsulated smaller or greater caseous nodes not showing any progression.

3. Partly encapsulated nodes with partly fibrous foci showing a slow progress of the tubercles.

The fate of a person infected depends upon the number of bacilli, upon the frequency of infection, and upon the immunity, or, rather, how effectively this immunity can develop.

In the seemingly healed lymph nodes as well as in these encapsulated caseous or calcified nodes of the lungs, we may find living bacilli by means of animal inoculation.

Children in contact with consumptives are especially exposed to repeated infection through the pulverisation of dried sputum, or through the spray of droplets from coughing patients, or through their own dirty fingers, etc. Often renewed infections present the poorest prognosis even when the organism fights the infection fairly well; but the prognosis is still more grave when the patient is disposed to tuberculosis. Later, we shall speak of the question of disposition toward tuberculosis.

Besides the frequency of infection, the virulence of the bacilli is important. In cases of acute or subacute consumption developing in a host disposed toward the disease, the bacilli rapidly increase in number. They do not deteriorate, and therefore they are more virulent than bacilli, originating in a slow fibrous process, where they develop in a more or less immune organism. The latter are exposed in the lungs to the influence of immune bodies. They are usually found in a degenerate form, and often they are less acid-fast than the virulent type. In many cases of chronic phthisis we find with the Ziehl method very few bacilli, or none at all, but rather Spengler's "splitters" or Much's "granules" (attenuated forms of the tubercle bacilli). The smaller number and less virulent bacilli or granules naturally produce a milder, less progressive infection.

Still another factor in the course of the disease is the relative immunity of the patient. Descendants of consumptives were for a long time believed to inherit, if not the sickness itself, a certain tendency toward it. We must abandon this principle and replace it with its opposite: *descendants of consumptives inherit a certain degree of immunity.* This thesis harmonises with the evidence that the intensity of tuberculosis diminishes from generation to generation. This is also proved by laboratory researches, notably those of E. ROSENKRANTZ (2) of Calmette's institution, who, in a blood test of new-born babies, found, by means of Bordet-Gengou reaction, antibodies of tuberculosis in 31 cases among 100.

The immune bodies, so far as developed in the body of the tuberculous subjects, are to a certain degree transmitted to their descendants. Therefore, under the same circumstances, descendants of consumptive parents incur the infection less easily than descendants of families free of tuberculosis. Evidence that children of consumptives die more frequently of tuberculosis is only superficial, since most of these children are constantly exposed to infection.

The acquired immunity is produced by the absorption of toxin from the primary focus. Two kinds of immunity develop: *antitoxic and lytic.* The former also appears after tuberculin injections have been made, and is frequently found in persons with progressive tuberculosis. In both cases large doses of tuberculin can be injected without injury to the patient or the provocation of any singular reactions. The lytic immunity, on the contrary, is always accompanied by *hypersensitiveness.* The accumulated lysins dissolve the bacilli and, as a result, the endotoxin is liberated. Although the latter is a more satisfactory kind of immunity, since it assures a stronger protection against renewed infection, it gives no absolute protection. Even after provoking continual intoxications, it causes a febrile reaction and other pathological symptoms. As a consequence of this hypersensitivity, the most varied functional disorders and subjective symptoms can develop, which often torment the patient for years and even decades, without his ever having any manifest symptoms of tuberculosis.

The patient, in proportion to his hypersensitiveness, begins to react to the toxins of his own tubercle bacilli or to repeated slight infections. His temperature varies; it is quick to rise above or fall below normal. In other cases, at times its type is changed, although it seldom rises above the normal. The function of the vasomotor nervous system may fluctuate similarly. The patient blushes or becomes pale very easily, the extremities are frequently cyanotic and cold. At times he feels hot, at others he has chills. The secretion of perspiration increases, and often the slightest exertion like a walk is accompanied by more or less sweating. Nervous symptoms manifested in most varied disturbances appear, such as vertigo and extreme fatigue, especially in the morning. The patients are ill-humoured, excitable, and easily provoked to tears. Psychic disturbances may develop, which may increase even to a pronounced psychosis. The patients are restless; at times they are continually troubled by marked insomnia and at others they are always sleepy, no matter how much sleep they have had. Sleep is often disturbed by nightmares. Especially frequent are disturbances of the heart, such as palpitation and a fast and sometimes arhythmic pulse. A frequent symptom is occasional shortness of breath, often increasing so as nearly to incapacitate the patients. Among the many disturbances of the gastro-intestinal tract, loss of appetite should be mentioned as a very frequent symptom, which may alternate with a nervous hunger; others are nausea, diarrhœa, more often temporary or constant constipation. Various pains may afflict the patient. Particularly frequent are different kinds of headaches, pain in the joints, muscles, or nerves; gastralgia, appearing before or after meals; pains localised in the kidney or gall bladder; appendicular pains, etc. There are menstrual disorders, such as irregular, scanty, profuse, or continued hæmorrhages, often complicated by dysmenorrhœa and other disorders. Different disturbances pertaining to the general development, puberty, and metabolism may appear; also chronic skin lesions like psoriasis, eczema, etc.

These symptoms are partly the result of disturbances in the individual organs, but for the most part they are caused, indirectly, through *injuries affecting the endocrine glands*. Irritation and eventually decreased function of these glands secondarily influence metabolism, growth of organism, and the function of organs. For instance, irritation of the ovaries causes precocious puberty and profuse menstrual bleeding. Decreased function of the same organs causes late and defective puberty and amenorrhœa. Irritation of the thyroid may cause loss of weight and symptoms of toxic goitre. On the other hand, a decreased function may effect a gain in weight, headaches, and other metabolic and nervous symptoms. The symptoms may be transient or constant.

The continued influence of intoxications, according to the individual reaction of the different organs to the toxins, may provoke in these organs chronic inflammation, the nature of which was explained by PONCET and LERICHE (3), who described the anatomical changes due to tuberculous intoxication. One or another symptom or symptom complexes may appear in the patient; and the more his immunity increases, the more the symptoms of intoxications will develop and become chronic. Meanwhile the tuberculous process itself progresses very slowly, or does not progress at all, due to the immunity, and therefore in many cases it is not demonstrable by the usual clinical examinations. Because of the similarity of symptoms, the sickness of such individuals is not diagnosed as tuberculosis, but as anæmia, neurasthenia, hysteria, neurosis, rheumatism, etc.

Among tuberculous families, especially when the disease has appeared in several generations, many patients of this type may be found. *Hereditary immunity* plays a large rôle in decreasing the intensity of the tuberculosis afflicting generation after generation. One parent might suffer from chronic phthisis; one or two of the children might also have manifest tuberculosis, the majority being neurasthenic or anæmic, whereas the grandchildren may show only the most varied forms of the already attenuated tuberculosis—as, for instance, thyrosis in one case, rheumatism in another, a disturbance of the development or metabolism, or some other group of symptoms of these varied clinical pictures—whether we call it *tuberculous intoxication*, after my nomenclature, or *inflammatory tuberculosis*, after Poncet and Leriche. Patients with such an intoxication, hypersensibility, or lytical immunity (all these expressions have identical meaning) will, naturally, have entirely different reactions to renewed infections from those shown by tuberculous patients without such immunity or by healthy individuals. The added endotoxin will increase the existing symptoms which are most often shown by fever or also by slow marasmus. The repeated and more intensive infections finally stop the production of immune bodies, and the tuberculous process manifests itself. But in the same degree that the immunity, and therefore the hypersensitivity, diminishes, either because of renewed infection or other causes—the reaction phenomena of the organism—the symptoms of intoxication disappear.

On the contrary, if the infection reaches a host who has not previously acquired a natural immunity and, therefore, is not hypersensitive or even inclined toward the infection, nothing hinders its progress. The local process has a progressive tendency without producing the aforementioned reaction. The first signs of the infection are common manifest symptoms of the disease: hæmoptysis, fever, cough, râles over the apex, bacilli in sputum, etc. In such cases the characteristic symptoms of the intoxication neither proceed nor accompany the sickness, or they are found only in rudimentary forms. The sudden development of obvious symptoms and the lack of reaction is especially striking in persons *inclined to tuberculosis.*

The tendency toward tuberculosis, as well as immunity, can be inherited or acquired. *The acquired tendency* will be stimulated by all conditions which usually diminish or hinder the production of immune bodies. Such factors are: defective nourishment, overwork, lack of rest, vitiated air—that is, in general, the continuous effect of bad hygienic conditions. Furthermore, such is the influence of certain infections or intoxications, for instance measles, pertussis, influenza, or alcoholism. Pregnancy may also be placed in this class; the pernicious effect at times of pregnancy upon the progression of tuberculosis is well known.

There is actually a tendency toward tuberculosis in every one descending from parents free from tuberculosis. But the healthy baby or child may acquire a relative immunity in cases of infrequent and slight infection, which is needed to overcome a future greater infection. However, we must consider persons especially predisposed to the disease, whose blood cells either are incapable of producing immune bodies or have a notably decreasing capacity. Such persons are the *descendants of alcohol addicts*. What Leitinen of Finland proved in hundreds of his animal experiments is confirmed not only by my own investigations, but also by common daily experiences. Here tuberculous infection does not cause symptoms of intoxication, or these only in very rudimentary form. The sickness tends in general to be malignant, and therefore it is often difficult to hinder its progress. In the case of such patients, often with the best climatic, sanatorium, or specific treatment, one cannot hinder the progress even in its incipient stage, because the organism cannot produce immune bodies sufficient for the cure. On this basis we can readily understand the statistics of BUNGE, according to which 8 per cent. of the children of occasional drinkers suffer from tuberculosis, 16 per cent. of the children of habitual drinkers, and 22 per cent. of those of drunkards. So we can understand that the increase of consumption parallels the spread of alcoholism.

The healed or healing foci found at autopsies which have been, so far, considered of secondary importance by clinicians, call to our attention two points of discussion. First of all, they form the basis of the later tuberculous immunity, the explanation of which we know from the classical animal experiments of ROBERT KOCH. The first infection gives to guinea-pigs a certain grade of lytical immunity, and therefore the later injected bacilli are practically dissolved. The pigs, therefore, for the second time have a violent local reaction. Concomitantly, fever and symptoms of universal intoxication develop. If the new infection is too great, the animal succumbs, due to the rapid endotoxin poisoning, while the healthy animal acquires the usual tuberculosis developing from the same dose. So great an infection such as we use in animal experiments does not occur in human beings, and one can readily understand, if the first infection does not cause a progressive, fatal tuberculosis, it acts like an artificial vaccination, except that it does not produce an absolute immunity. Just this partial immunity, the developing of lysins, causes the second important factor on latent foci, namely, *the hypersensitivity* *of the organism,* which is the basis of the symptoms of *intoxication.*

As we said before, the extraordinarily varied and often seemingly incompatible symptoms and syndromes are typical of tuberculous intoxications, and yet the identical ætiology and therapy bind them into a clinical unit. This state may remain as such for years or even decades, and terminates by healing with a definite cicatrisation or calcification of the focus ; or else it pursues the patient throughout his life, especially if he is often exposed to renewed slight infections. Finally, if the immunity ceases due to various causes, it turns into consumption, of which it represents the first stage.

The recognition and evaluation of these symptoms have an importance, first, from the point of view of early diagnosis, in which state the sickness may be healed relatively easily and definitely by means of specific therapy. We can accomplish by this specific therapy the best prophylaxis of consumption. On the other hand, all these symptom complexes appear under the names of sicknesses of obscure origin, such as anæmia, neurasthenia, hysteria, neurosis, thyrosis, etc. The proper understanding and cure of these sicknesses will transform the whole conception of the practising physician.

In the final analysis, most of the extraordinarily variable symptoms and symptom complexes of tuberculous intoxication can be reduced to disturbances of two systems ; the endocrinal and sympathetic nervous systems, which are closely combined in their mutual relations and bring forth the most varied clinical picture and often quite clinically incompatible symptoms. At times one or two are present, or only one may be the dominating symptom ; for instance, headache, persisting for years, or dysmenorrhœa, or sleeplessness, for which the patient consults the doctor. However, a number of minor symptoms may be discovered by proper inquiries. Again, many of these symptoms may disturb the patient, who consults one physician after the other with his complaints, rarely or never getting any relief from the customary iron, arsenic, phosphorus, bromides, or other medication, hydrotherapic or dietary measures, suggestive therapy and so on, and often his illness recurs even after *climatic treatment.*

That tuberculosis causes and sustains these symptoms, we can prove by the following :—

1. The demonstrating of tuberculosis by physical examination (including X-ray), or by specific diagnostic procedure. If symptoms of intoxication are together with manifest tuberculosis, the latter is never a progressive, acute process, but appears always in a chronic, benign form which might produce the hypersensitivity through its partial immunity.

2. All these symptoms can be cured, temporarily or entirely, by a well-applied specific therapy (using tuberculins or Spengler's immune blood) which, as specific antigens or immune bodies, can act only on tuberculosis. Symptoms persisting for years and defying every treatment can occasionally be cured by one or a few injections of immune blood by neutralising the toxin.

3. All these symptoms mentioned can be provoked or increased during the course of specific treatment, especially by the injection of the non-corresponding tuberculin, or by the larger doses of immune blood, causing a stronger lysis. If, in such case, the corresponding tuberculin is injected, or if we return to the smallest doses of immune blood, we may be able to stop with a single injection all the toxic symptoms provoked. Such cases have the value of exact experiments. Within the last twenty years I have had the opportunity of drawing the above conclusions from my specific treatment and the careful observation of about 15,000 patients.

4. The post-mortem proof is also of great importance, but this material will accumulate slowly because we can judge only of the specifically treated cases. I have had the opportunity of dissecting only two of such cases : both patients died from intercurrent disease. The history of both I give as follows :—

CASE 1—S. E. (FEMALE), 22 YEARS OLD

The patient came to my dispensary in February 1908, complaining that she had suffered for years from a severe headache. She slept badly, occasionally was dizzy, and easily tired. She often had palpitation of the heart. She had had a stitch in her side for a week. There was no cough. Her father died four years previously of consumption.

I did not find any change in the chest by means of percussion and auscultation. Her pulse was 119. She had no fever.

On the basis of the subjective complaints (headache, dizziness, insomnia, tiredness, palpitation), I diagnosed tuberculous intoxication. At that time I also used specific diagnostic methods, and I injected for a diagnostic purpose both $\frac{1}{10}$ mg. ATO and PTO subcutaneously. After two days there was a red, painful swelling as large as a small walnut on the place of both injections. Because of this reaction I began a treatment with PV of Spengler (Perlsucht vaccine, *i.e.*, PTO + bovine bacillus emulsion), which I continued for seven weeks (eleven injections), and during that time all the symptoms disappeared. The patient gained 5 lbs.. and later 4 lbs. more.

The patient came again after six and a half months. She had felt better until a month before, when she had been troubled by the stitch, palpitation, and insomnia. She vomited for four days. This proved to be a symptom of peptic ulcer of the stomach. The perforation of the ulcer took place and she died a few days later.

In both apices of the body there were small, chronic tuberculous foci. In the left one there was a solitary focus as large as half a bean, quite calcified and encapsuled. In the right side, around a cicatrised area, there was some fibrous tubercles and a small encapsuled caseous focus around which were a few cicatrised tubercles with caseous centre.

In the histological examination, the growth of fibroblasts in the dead tissue was striking. In some places new formed, vascularised connective tissue, rich in cells, was abundant around the caseous areas. The evidence of its active appearance was undeniable. Around the old foci some fresh epithelioid tubercles were found. In the middle of an encapsuled caseous focus, tubercle bacilli were present in fairly large numbers.

This case proves excellently that years before any physical symptoms and cough appear, symptoms of intoxication may be present, and it is these which must be considered most important for the earliest diagnosis possible. In this case headache, dizziness, insomnia, fatigue, and palpitation were present. After seven weeks of tuberculin treatment all symptoms ceased; the patient gained in weight and health for six and a half months. Then there appeared a mild recurrence, manifesting itself subjectively in palpitation and insomnia, objectively in fresh tubercles around a focus beginning to heal.

Case 2

The second case was that of a 27 year old girl who had lost weight for some time and since then had suffered headaches, fatigue, and palpitation. There was a negative finding in the lungs. All these symptoms quite disappeared after two months of immune-blood treatment. Immediately after this cure the patient contracted a septic scarlet fever, to which she succumbed in a few days.

In the left apex at the autopsy I found a single fresh tubercle in the process of healing, and in the apex of the left under lobe I found a calcified focus the size of a pea, the result of a tuberculous condition which had healed long ago. This healed focus was the reason for her hypersensitivity, which was manifested in toxic symptoms caused by a single new tubercle.

CHAPTER II

ENDOCRINE DISTURBANCES

Action of Endocrinal Glands. Disturbances of Development in Childhood. Disorders of Calcium Metabolism. Deformities. Hypophyseal Stimulation and Retardation. Anomalies of Adolescence. Disorders of the Thyroid and the Gonads. Peculiar Action of the Ovary. Disturbances of the Psyche. Metabolic Disorders. Asthenia.

THE normal function of the endocrine glands is the *sine quâ non* of health, and their disorders are of fundamental effect and vital importance. They influence and regulate all development and the entire metabolism; they neutralise or destroy the toxins produced in the body; they are intimately connected with the regulators of the vegetative life, the sympathetic nervous system, and they mutually influence the action of each other. They also influence certain sexual, mental and psychic functions. Their products are active in extremely small quantities. Their action may be stimulative or retarding, even fermentative in the sense that they liberate latent energy. There is a close relationship between them, the one increasing, supplementing, or hindering the action of the other. Their pathological action may express itself thus :—

Hyperfunction.
Hypofunction.
Dysfunction.

Neither the pathology nor the ætiology of the disorders in the individual glands is sufficiently known.

The effect of tuberculous intoxication, especially in case of hypersensitivity, will appear first and be most marked in these sensitively reacting organs of the body, and my observations in this field will contribute considerably to the clarification of the pathogenesis in certain endocrine disturbances. The toxins constantly disturb this apparatus, acting on it as stimulating or inhibiting factors, or cause more or less dysfunction. In the last analysis the symptoms of tuberculous intoxication are, in the majority of cases, the consequences of endocrine disturbances. It is under the chronic influence of these toxins that disturbances of the nervous system arise ; mental and metabolic disorders both of the vegetative and psychic dysfunction and various subjective symptoms appear which, in manifold combinations, produce the most variegated clinical pictures. The intoxication either produces the endocrine disturbances directly, or upsets the balance in a congenitally weak or otherwise disturbed glandular system and contributes to the ætiology and establishment of a pathological syndrome. As we have seen, the infection takes place mostly in childhood, and the endocrine disturbances provoked in the hypersensitised system will leave their impression on the entire organism, chiefly by affecting the development and causing disturbances during puberty.

In fewer instances only one gland is disturbed, or, at least, dominates the pathological picture, especially when structure of that gland is also affected ; but, in the main, we find a polyglandular syndrome. This is easily accounted for by the fact that the toxin action reaches them all. The syndromes belong mostly to the type *fruste*.

Our attention is directed to the latent tuberculosis of childhood mostly by *disturbances in development*. The child who gained in weight steadily ceases to gain or even loses weight, the healthy colour fades, the turgor of the skin diminishes, the muscles become flabby, the lanugo changes into light hair at certain places, as over the lower arm, the legs, and the interscapular area. These disturbances in metabolism themselves indicate the beginning of disturbed function of the endocrine system. Disturbance of the *parathyroids* will show in pathological calcium metabolism ; in later childhood the bones become softer. This will be most evident in bones exposed to the greatest stress and strain, *i.e.*, on the spinal column and the lower extremities. In most cases the deformity is but slight: the spine deviates a little to either side, or backwards, or becomes too straight. The legs bend a little, the feet flatten somewhat. In more advanced cases marked scoliosis or lordosis, genu valgum or varum, and marked flat feet develop, due chiefly to the latent tuberculosis of childhood. Probably a disordered adrenal function also plays some rôle in this mild form of osteomalacia.

The toxins acting in the *hypophysis* will cause, besides other symptoms, a disturbance in the longitudinal growth of the bones. Depending on a stimulating or retarding action of the toxins, there will be an unusually rapid or delayed growth. In the first case the child at the age of 10 to 12 will suddenly begin to grow, but its weight will remain disproportionately behind the height. Sometimes this growth in height is remarkably fast, and the adolescent or even younger individual will be taller than his older brothers and sisters, or even than his parents. Usually the chest will remain narrow and flat. The basis of "habitus phthisicus," and very often gigantic growth, is founded on tuberculosis infection in childhood. Sometimes a certain degree of acromegaly, a slight overgrowth of hands and feet, is observed.

From the numerous cases that have come under my observation, let me cite the following:—

CASE 3—B. I. (MALE), 28 YEARS OLD

The father and mother are small in size. The maternal grandmother died at the age of 31 of pulmonary tuberculosis. The mother is emaciated, hardly 100 lbs. in weight, sickly, and has had frequent lung troubles. Several of the mother's brothers and sisters were sickly; the relatives were mostly underdeveloped, and one cousin died of consumption.

Both the patient and his brother began to grow rather rapidly between the ages of 10 and 13; they were both over 6 ft. in height. The brother was left with a narrow chest and was sickly in general. He himself, a nervous, undernourished, and anæmic child, began at the age of 14 to suffer from gastric disturbances and constipation. Later on, when in very favourable circumstances, he became stronger and perfectly healthy. He was 6 ft. 1 in. tall and weighed 190 lbs. The pulse was 72. Over the right apex the remnants of a scarification of the lung could be detected.

From this case we can see that the well-developed and healthy person may attribute his unusual size to the stimulating effect of the latent tuberculosis of his childhood because of its effect on his hypophysis and thyroid glands before adolescence. The symptoms were bad nutrition, nervous instability, and very rapid growth. During adolescence the tuberculosis healed up and, since there was nothing to retard his further development, he acquired a strong, healthy body while his brother remained thin. It is of significance that the parents were both small.

In case of inhibiting action, the child will be retarded in his development, will show small stature, underdeveloped genitals, and puberty may be markedly delayed. Such is the following case :—

CASE 4—N. E. (FEMALE), 25 YEARS OLD

For many years she had a cough, and a few days previous to the examination had a slight hæmoptysis. She was subject to headaches and dizziness. Once she had fainted. She had painful extremities, no appetite. She perspired considerably day and night. She menstruated first at the age of 16 and not since. She had no sexual desire. The patient was very underdeveloped. There was no development of the breasts. Her intellectual functions were infantile. Over the right apex an old fibrous process was detected.

We know that the *disorders of adolescence* arise from endocrine disturbances. The most frequent cause of these we find in a tuberculous intoxication. Besides the hypophysis, disorders of the thyroid and sexual glands play an important rôle. A diminished function of these glands will cause a delayed puberty and a retardation in the development of the secondary sexual characteristics.

With the diminished function of the *thyroids*, the individual's general activity and his moral and intellectual capacity are on a lower level, his attentiveness in school is poor. In general, students of this type are below par. They are more or less lazy and indolent.

The hyperfunction of the thyroids caused by tuberculous intoxication is much more frequent than the diminished function, and presents just the opposite picture. Longitudinal growth is rather hastened, mental functions are active, and the children are more impressionable, more active. Physically they are thin and gain in weight very slowly. Their pulse is rather rapid and unsteady; they often suffer from insomnia. With girls the menstruation is irregular and often there is found a slight enlargement of the thyroid, which may disappear in a few years or may progress and become permanent.

I shall deal in a separate chapter with the hyperthyrosis consequent to tuberculous intoxication. More rare are those cases where a diminished thyroid function plays a rôle. A disappearance of the pathological symptoms can be obtained by supplying the necessary hormone (symptomatic treatment), or by the immune-blood (ætiologic) treatment.

An interesting observation concerning this was furnished by the following case:—

CASE 5—GIRL, 22 YEARS OLD

She had suffered from severe headaches for many years. These headaches recurred every day and sometimes incapacitated her for work. She tired quickly and easily. She had lost her appetite, but, nevertheless, was gaining weight. Her hair began to fall out. Menstruation started late and was frequently absent; flowed but little at a time. She had no sexual desire.

In the fairly developed pale girl I found a slight trace of fibrous tuberculosis in one of the apices. As indicated by the symptoms, I made the diagnosis of diminished thyroid function of tuberculous origin. Thyroidin was given hypodermically every day, later every second day, with a complete disappearance of the headaches; as soon as the thyroidin was stopped, they reappeared. Now immune-blood treatment was instituted, and the headaches, as well as the other symptoms, disappeared. It is worthy of note that, though the patient's appetite improved, she lost a few pounds. For a month after the immune-blood treatment was stopped she was still in good health. The relapse that appeared later was cured quickly by means of thyroid feeding, and omission of this brought on a recurrence of headaches and tired feeling. After renewed immune-blood treatment she felt comfortably well for a year, and even her sexual desire appeared.

This is a real school example of how it is possible to treat a patient successfully both by giving a missing hormone, in this case thyroidin (*i.e.*, symptomatic basis), and by immune-blood treatment (*i.e.*, ætiologic basis). The last-mentioned is naturally more satisfactory and lasting, presupposing that the gland was not destroyed entirely by the effect of the tuberculosis toxins. In such case administration of the hormone is absolutely necessary.

The following case also shows a dysthyrosis, but other endocrine disturbances (of the hypophysis, adrenals, ovary) are also present.

CASE 6—MRS A. V., 23 YEARS OLD

At the age of 12 she suddenly began to grow, had frequent headaches, was very nervous, fainted often, and had attacks of palpitation. Four years ago she had her appendix removed. For the last two years her frequent and intense headaches had returned. One and a half years before she had suffered a great emotional strain, and since then she had been very nervous, was troubled by nightmares, and had constant palpitation. She awakened with tired feeling, was easily exhausted, had shortness of breath after a short walk, lately had frequent nausea, heartburn, and constipation. She was gaining in weight. For the past year her hair had been falling out. During the last three weeks she had had pains in her extremities. She had a slight cough. Her first menstruation occurred at the age of 13, was regular, but lasted seven to ten days. Later on she missed her periods occasionally. She had been married for nineteen months and had menstruated only three times during that time. Menstruation was accompanied usually by severe pains. She was rather frigid. Her father coughed and had diabetes. One brother had pulmonary tuberculosis, but got well.

The patient was tall, well developed and nourished, and had very good colour. Over the apices, Pottenger's sign was present to a slight degree. The pulse was 80. The finding of the gynæcologist was infantilismus uteri.

I began immune-blood treatment with the patient (starting dose, Xth dilution) and gave one Richter's thyroid tablet daily. Very soon the constipation, heartburn, and nausea stopped. The pain in the extremities increased. After the second injection (IXth dilution) the headache stopped and did not recur again. After four days a reaction appeared, lasting for five days, with slight fever, sore throat, painful extremities, and very bad dreams. After that the temperature was normal and the nightly rest more quiet. During one month's treatment she lost 7 lbs. Because she felt well she discontinued the treatment.

By analysing the symptoms of the patient, disturbed functions may be noted in the following glands :—

Hypophysis : rapid growth, frequent headaches.

Thyroids : nervousness, palpitation, obesity, loss of hair, painful extremities.

Ovaries : dysmenorrhœa.

Combination of the above three : amenorrhœa, infantile uterus, frigidity.

Adrenals : easily induced fatigue, morning tiredness.

Undoubtedly the gastric and intestinal symptoms are also the result of polyglandular dysfunction.

Rather frequently a thyrogenes obesity is found, especially in young girls, and only later on it may be discovered that with this early obesity a latent tuberculosis is present. Hypophyseal obesity is also fairly frequent in both sexes and is often complicated by a retardation in the development of the sexual organs and a disturbed sexual function.

The period of adolescence is, of course, markedly influenced by the function of the *sexual glands*. In the pathology of puberty a hyper-, hypo-, or dysfunction of the sexual glands is of paramount importance. In sexual neurasthenias developing after puberty, we should always be on the lookout for a latent tuberculosis. Functional disturbances of the ovary manifest themselves, in addition to the disorders of adolescence, in menstrual troubles, the discussion of which will occupy a separate chapter. The following case will indicate a function of the ovary as yet not mentioned in medical literature :—

CASE 7—S. M., NURSE, 30 YEARS OLD

On 11th January 1912 she came to me complaining that she had suffered from diarrhœa since childhood; that whatever she ate passed right through her. After further inquiry she stated that sometimes she suffered from headaches and dizziness, perspired during the night, and awakened with a very tired feeling. She was very much exhausted all during the day and had a pain in her back. She had coughed considerably for days and was losing weight. She began to menstruate at the age of 15, and menstruated regularly and painlessly for one week. *During this time her bowel movements were normal and she had no diarrhœa.* This had been the case since the onset of menstruation. The patient was well developed, fairly well nourished, with depressed supraclavicular fossæ, slightly harsh breathing over the apices, pulse 68, abdomen tender on pressure. Her temperature was constantly subfebrile, and though my diagnosis was tuberculous intoxication, instead of the immune-blood treatment I decided to give an ovarian preparation a trial, basing this decision on the idea that the diarrhœa may be caused by a deficiency in ovarian hormone. After she had taken three Richter's ovarian tablets a day, the diarrhœa and the abdominal pain disappeared at once and her bowel movements became permanently regular. After two weeks (27th June) I started systematic immune-blood treatment, but prescribed the ovarian tablets until 19th July. Even after the discontinuation of the tablets the bowel movements remained regular. The patient's appetite and nervousness improved and she gained weight. In August she was feeling perfectly well. At this time, during her menstruation, a strong, cramp-like pain appeared in the lower abdomen, something she had never experienced before. I continued the immune-blood treatment till 11th October, when the patient, feeling well, did not return for six weeks. She then complained of a bloated feeling on the first day of menstruation ; before that she was nauseated, had no appetite, and bled very profusely for two days. A new course of immune-blood treatment was started, after which the patient did not appear again for four months.

Upon discontinuation of the treatment, her diarrhœa recurred, and by 20th March 1913, when she came to my office again, she was having five or six loose bowel movements a day. I prescribed ovarian tablets again, with the result that the diarrhœa stopped right away and, a week after starting the immune-blood treatment, her bowels became regular and remained so even after discontinuing the ovarian tablets.

In this case, then, we can establish the fact that the patient was suffering from a tuberculous intoxication which disappeared after immune-blood treatment, and that an outstanding symptom of it was a *diarrhœa of ovarian origin* which could be stopped both by immune-blood treatment and by ovary feeding. Meanwhile, in the ovaries a reaction set in from the immune blood in the form of a single attack of dysmenorrhœa. The most prominent symptom of the disease, the diarrhœa, could be controlled both with ovarian hormones (symptomatic treatment) and with immune-blood (ætiological) treatment.

Disturbances of the ovary, namely of the corpus luteum, are the cause of many abortions.

Adolescence means not only physical, but also intellectual and moral development ; therefore, derangement of adolescence means more or less damage to the intellectual and moral make-up of the individual. Precocious intelligence or its opposite, mental deficiency, tendency to neurasthenia, neurosis, psychosis, are very often based on a latent tuberculosis. I have very often seen unpleasant features of character in children and youths disappear after immune-blood treatment. Lighter symptoms of maniac-depression may often be discovered in concealed tuberculosis, and these psychic disturbances may accompany their victims for years or during their entire lives. In psychopaths, a tuberculous intoxication is frequently found. Owing to their hypersensitiveness, a new focus of intoxication can provoke decided insanity, and especially in *maniac-depressive* and *dementia præcox* patients. The real cause of insanity can frequently be found there.

In dementia præcox cases, some writers were able to demonstrate pathologic changes in the tissue of the endocrines, especially in the sexual glands. **Mott** and **Such** (4) found chronic changes in the interstitial cells of the testis. It is of significance that of their twenty-two published cases, eleven died of tuberculosis. **Foster** and **Edin** (5) found an early involution of the ovary, an increase in the interstitial connective tissue, and a marked scarring of the Graafian follicles. There is undoubtedly a certain correlation between the brain and the function of the sexual glands. Other writers found pronounced sclerosis of thyroid. **Mott** and **Mc. B. Robinson** described atrophy and other changes in the hypophysis of twenty cases of dementia præcox (thirteen died of consumption).

I regret that I had no opportunity to treat such cases with immune blood, but **Liebermeister** (6), in his excellent book on tuberculosis, has some interesting observations on this subject which I consider important enough to mention here. He gives an account of a few cases where tuberculin treatment brought a marked, though temporary, improvement in maniac-depressive and dementia præcox patients. A lasting improvement or cure naturally can be expected only in early cases before pathologic changes take place in the endocrines. I consider it probable that in the early stage a complete cure could be attained with systematic immune-blood treatment and proper polyglandular therapy.

It is from this same author that I quote the following data. At the autopsies in a German asylum, Low (7) found that the large mortality from tuberculosis was confined to certain diseases. Tuberculosis was found to be the most frequent cause of death in dementia præcox, *i.e.*, in 50·6 per cent. of the cases. An additional 9 per cent. organic tuberculosis was found. In maniac-depressive psychosis, the percentage was 32 ; in epilepsy, 27 ; and in the latter, an additional 10 per cent. were found with organic tuberculosis. In all other forms of insanity, death from tuberculosis was only 10 per cent.

He found also that all these patients were infected when they came to the asylum, and that only in an insignificant percentage could institutional infection be determined. On the basis of his autopsies, Low concludes that there is some connection between dementia præcox and tuberculosis. According to Liebermeister, it is peculiar that in very advanced consumption dementia almost never develops. I find this compatible in view of the ideas expressed in the first chapter, because, since in progressive tuberculosis there is no lytic immunity, therefore hypersensitiveness, the cause of the symptoms of intoxication, is absent. The antihygienic life that goes with insanity abolishes the immunity and thus promotes lethal tuberculosis. Of the interrelation of tuberculosis and epilepsy I shall speak in another chapter.

Disturbances in the function of the endocrines often cause more or less permanent damage to the *metabolism*. Of the disturbances in calcium metabolism, which appear toward the termination of infancy, I have already spoken. On several occasions observations were made of disturbed *water metabolism* in connection with immune-blood treatment, when, as a reaction to the first injections, transient polyuria appeared. Occasionally, slight transient œdema appears. Slight *glycosuria* is found not infrequently with tuberculous intoxication, a symptom which disappears under immune-blood treatment.

A large proportion of *juvenile diabetes* is caused by latent tuberculosis. In general, there is some connection between diabetes and tuberculosis. It is known that diabetics often succumb to tuberculosis because their immunity disappears on account of their disease.

It is easy to see, after the above considerations, that in tuberculous intoxications the most varied and often exactly opposite symptoms or symptom groups may be found, and the variability of the picture is unparalleled in all pathology.

From the disturbances of puberty, development, and metabolism, we get the pathologic picture which **Stiller** called "*asthenia,*" and which, in accordance with his explanation, is a congenital habitus. Fundamentally, the asthenic build is nothing but the accumulated effect of the tuberculous intoxication of several generations. C. **Kramer** (8) concludes in his valuable book on the ætiology of tuberculosis that asthenia is a consequence of tuberculous infection in childhood.

Asthenia is very common among the Jews; so much so that in Russia and in certain parts of Austria, at musterings for military enlistment, it was accepted as a racial characteristic. It is also known that the Jewish race outnumbers all the other races in those diseases which we consider of endocrinal origin, such as certain neuroses, neurasthenia, dysmenorrhœa, and metabolic diseases. L. **Davidoff** (9) (Boston), in his study on acromegaly, states that out of his 100 cases, 21 were of the Jewish race, whereas the Jewish population of the United States is only 3·4 per cent. of the whole. It is well known that the largest proportion of diabetics is among the Jews. The Jewish race, however, has the smallest mortality in the world from tuberculosis.

Maurice Fishberg (10) publishes statistics, according to which the Italian and Irish inhabitants of the same area and environment on the east side of New York City have four times as large a mortality due to tuberculosis as the Jews.

Out of 100,000 inhabitants, there died of tuberculosis:—

In Berlin (in 1905)—98 Jews, 216 non-Jews.
In Vienna (in 1905)—154 Jews, 234 non-Jews.
In New York, on the East side (in 1906)—135 Jews, 239 non-Jews.
In the entire United States, from 1885-90, pulmonary tuberculosis was the cause of death with 98 Jews, 205 native-born Americans, and 744 negroes.

The explanation of this remarkable observation is as follows: The Jews lived for over 1,500 years in ghettos in crowded conditions, and were not permitted to work on farms. As a result, through many centuries they constantly transmitted tuberculous infection to one another. By acquiring the infection from generation to generation, they have developed such an inherited immunity against tuberculosis that it prevents the malignant progressive form of the disease and holds a slower, more benign course. On the other hand, in consequence of this immunity, the hypersensitiveness had increased more and more and gradually an endocrine weakness has developed which, in connection with the mild infection present, leads more easily to chronic endocrine disturbances. So the Jews suffer more severely and in larger numbers from the delayed effects of the thousand years of tuberculous infection than other peoples who are mostly descendants of farmers and country folk, and whose ancestors were therefore less exposed to tuberculous infection. This is more evident among the American negroes, who were brought here only a couple of centuries ago from countries free from tuberculosis. The congenital immunity is smallest in their case, and consequently they fall a prey in greater numbers to consumption. On the other hand, the insufficiently developed hypersensitiveness does not evoke in them the effects of the endocrine unbalance, *i.e.*, nervous, metabolic, and developmental disturbances. Diabetes, for instance, is statistically lowest among the negroes of all the American population.

CHAPTER III

NEURASTHENIA

Nervous Symptom in Childhood. Physical and Mental Fatigue in Adults. Insomnia and Drowsiness. Disturbances of Mood. Vertigo. Sensations of Fear. Vasomotor Disturbances. Palpitation. Cold Hands and Feet. Disturbances of the Heat Regulatory Mechanism. Nervous Respiratory Difficulties.

CONCEALED tuberculosis manifests itself most frequently in the form of " neurasthenia," in the symptomatology of which all the endocrine disturbances may be recognised in varying degree. This pathological picture, however, has nothing to do with the real neurasthenia which is of nervous rather than of endocrinal origin. Occasionally the two diseases may coexist, and in such cases it is not easy to determine the origin of certain symptoms. It is characteristic of tuberculous neurasthenia that it responds very readily to immune-blood therapy. We can easily understand that in individuals of tuberculous families these symptoms develop much more readily because of the endocrine disturbances, and the physician is often led astray by these symptoms. The characteristic symptoms of the disease of central nervous system origin do not belong here, but certain psychic disturbances may occur, *e.g.*, sensations of fear, which we often meet as symptoms of tuberculous intoxication. For example, a 44 year old female patient of mine had severe sensations of fear two or three times a week for about three years, and fainted occasionally at such times. Three months ago she had a light hæmoptysis. For half a year she had a cough and brought up much bacillus-free sputum. Following the first injection of immune blood, these sensations of fear ceased, and after four months of treatment they came only once, and then because of a severe family excitement. The cough also ceased. These and similar symptoms may lead the physician to a false diagnosis of *hysteria*.

Nervous symptoms often appear in childhood. The child becomes irritable; the slightest causes disturb its equanimity. Small children cry a great deal; the older ones become morose. They rise with difficulty in the morning because they awake feeling tired. They are easily fatigued and sometimes feel depressed all day. Sometimes they are constantly sleepy and fall asleep quickly; more often, however, they are poor sleepers, fall asleep with difficulty, and are easily awakened. They often awake with a start due to their restless and disturbed dreams. It is really surprising how quickly these nervous symptoms, which are often accompanied by digestive disturbances, disappear in little children upon the administration of immune blood, internally or by inunctions.

The "neurasthenic" complaints of adults are so characteristic of tuberculous intoxication, that after a careful history we can hardly entertain any doubt as to the origin of the disease. Usually, upon a physical examination, one or both apices may be found shrunken, but even without any suspicious physical signs the diagnosis can be made correctly.

Especially characteristic is *the great feeling of fatigue*, severe and *rapid tiring*. The patient usually awakes tired, regardless of how soundly he slept; often he is so drowsy that he can hardly get up and needs several hours to conquer his lethargy and fatigue. He is usually more tired in the morning than in the evening, and tires very easily. Often a short walk will cause extreme fatigue. Sometimes the patient is a strong, muscular individual whose physical make-up is entirely out of proportion to his constant complaints of fatigue. G. D. HEAD (11), in a recently published book on "Concealed Tuberculosis," called this form of the disease the "Tired Sickness," because of this characteristic feature. He considers the injection of a large dose of Koch tuberculin necessary for the purpose of diagnosis, though anyone reading his excellently observed and described cases and taking the above into consideration, can be guided in making a diagnosis without the use of tuberculin. The patient is made worse for a few days by a large dose of tuberculin, and suffers more than necessary. The use of immune blood can not only clear up a doubtful diagnosis by checking the symptoms, often by causing a reaction usually mild, but it may also lead us to a recognition of one or more *non-tuberculous* symptoms.

Patients often tire quickly of mental work and are unable to sustain prolonged mental effort. They are restless, irritable, and nervous. They become easily frightened and at such times may have severe palpitation of the heart. Various disturbances of sleep may develop. *Insomnia* is frequent and may persist for a long period. Sometimes this condition improves only to recur periodically. At other times they sleep soundly for ten or eleven hours, but in spite of this they feel so drowsy during the day that whenever they rest quietly they often fall asleep. *Restless sleep* is also very frequent. The patients toss about a great deal and have varied, usually confused, dreams. Their moods are very changeable, they are depressed, melancholy without reason, and cry easily. They may be subject to severe crying spells. A nervous symptom, by no means rare, is that the extremities are often asleep.

As an example of the symptom of wakefulness, let me present the following case :—

CASE 8—MRS P., 40 YEARS OLD

For the past six years the patient had slept badly, sometimes could not sleep all night. Frequently she had terrifying dreams from which she awoke with a start. She awoke feeling very tired. During this time she had had palpitation. For a long time she had suffered from epigastric pains, nausea, and complete anorexia periodically. The menses were painful, and during the flow she had severe headaches and nausea. She had been losing weight lately. She had sharp pains below the left scapula. Her husband died ten years ago of tuberculosis.

The patient was a well-developed, well-nourished woman, and no departure from the normal could be shown in the lungs. The sounds of the heart were clear. Pulse, 104. There was a tenderness in the epigastrium on deep palpation.

Because the patient lived out of town, I gave her a supply of immune blood, IVth dilution, with the instructions that five drops should be rubbed into the skin every third day. Three weeks later she returned feeling much stronger. The headaches had stopped, her recent menstrual period was less painful, there was less nausea, and her appetite had improved. After further inunctions for two weeks, her attacks of vertigo became milder, lasting only a few minutes at a time. The epigastric pains and nausea subsided. *She slept well every night.* She was not troubled with nightmares and awoke rested. Since she felt quite well the patient did not report for further treatment.

A frequent "nervous" symptom is *vertigo.* More or less severe vertigo occurs very often, chiefly when the patient bends down or rises. It is often accompanied by headaches and is often accompanied by dysmenorrhœa. Especially in young persons vertigo is a suspicious symptom of concealed tuberculosis. Sometimes it occurs in attacks; everything becomes dark to the patient and he may fall. Sometimes the patient faints.

CASE 9—E. T. (GIRL), 14 YEARS OLD

For several weeks she had attacks of vertigo and headaches. During the first year she had vomited occasionally. The patient was well developed and well nourished. At one apex I found exaggerated breath sounds and crepitations. Her weight was 107 lbs. Treatment was begun 18th February 1908.

With PV (Perlsucht Vaccine) injections, the headaches, vertigo, and coughing stopped, while she lost 2 lbs. in weight. After TBV (Tuberculosis Vaccine) injections, the headache and vertigo returned and a new symptom—fatigue—appeared. However, her weight increased to 111 lbs. After further TBV injections, continuous headaches, vertigo, absolute insomnia, and anorexia developed. When I returned to the PV injections, the symptoms increased in severity; vertigo became so severe that the patient had to remain in bed for hours at a time. Following inunctions of ATO (Alt Tuberculin Originale) in small doses, the symptoms improved. Finally, the hypersensitiveness was overcome and the headaches and vertigo disappeared for a month. In May 1908 I stopped treatment, and the patient remained well for two months. During this time her first menstrual period occurred. From July on, the headaches and vertigo appeared every day, and during September she had night sweats and began to cough again. Weight, 109 lbs.

At this time (September) I began the use of immune blood. After a single injection, the vertigo stopped and did not appear during the next eight months. Two days after the injection, the headaches also ceased. With further injections, her appetite improved excellently and the cough and sweating disappeared. Her general condition was quite good. The treatment was continued until the end of January, when the patient weighed 121 lbs. and increased to 128 lbs. by March. In March the headaches reappeared, as well as the vertigo. Her appetite became poorer and she slept badly. She had night sweats, sometimes day sweats, and coughed a little. This time I started inunctions of immune blood, and a week later she felt perfectly well. The headaches and vertigo stopped and the appetite improved. As she felt well, she did not report for further treatment.

It is especially significant to note in this case that while, because of the hypersensitiveness of the patient, tuberculin preparations were used with great difficulty and their use was limited, nevertheless the recurring toxic symptoms were immediately and easily conquered by the use of immune blood. For the treatment of such cases immune blood is indispensable.

Vasomotor disturbances are symptoms of frequent occurrence, among which we often find a rapid and changeable pulse. Patients often complain of more or less severe *palpitation*, and not unusually this constitutes their chief complaint, to which may be added *precordial pain*. Without any physical sign of heart disease, the physician is often inclined to make a diagnosis of "heart neurosis." The pulse, even when the patient is lying down, is often 120 or more. The rapid pulse and palpitation of the heart do not always come together; sometimes the pulse is very rapid with slight or rarely appearing palpitation. At other times, with a pulse of 80 or 90, the patient is tortured by severe palpitation. Slight exertion or emotion may precipitate an attack of palpitation or may bring on a few strong heart-beats. Sometimes the patient is awakened at night by a severe palpitation. The pulse may be arrhythmic at times, sometimes extremely irregular, a fact which may strengthen the diagnosis of heart neurosis. In one of my cases, a girl 10 years old, I found a severe arrhythmia which disappeared upon a prolonged immune-blood therapy.

For a long time *easy blushing* was considered one of the symptoms of an "inclination" toward tuberculosis. The thermal sensations of the skin are often disturbed. The patient feels cold, or certain parts of his body may feel cold (frequently the back). He often feels chilly or hot, in spite of the fact that the thermometer does not show any abnormal change of his temperature. However, if we take the temperature frequently during the day, we find that it is abnormally variable. Slight physical motion or psychic disturbance is sufficient to cause the temperature to move up or down. The temperature may vary even more than 1° or 2° F., often going below normal. Sometimes only its type is changed; it may be higher in the morning than in the afternoon. At other times we find a rise in temperature only during the night. With immune-blood therapy we often note that the feverless temperature becomes really normal only during or after treatment. This irregularity of the heat-regulating mechanism is also of endocrinal origin, and is due to a disturbance of the chromaffin system as well as the thyroid. It is possible that the hypophysis also has a part in this. In latent tuberculosis there is often a discernible premenstrual rise in temperature, which is dependent upon the action of the corpus luteum. All these hormonic disturbances act probably through a sympathicotonia, causing a rise of temperature.

A frequent vasomotor disturbance is, noticeably, *cold and cyanosed hands and feet.* For this reason the patient's hands and feet may freeze very easily. Hands and feet that are cold even in the summer will often disclose the existence of concealed tuberculosis. The tendency to perspire is a well-known symptom. Not to mention the typical tuberculosis night sweats: sweats in day-time are very frequent, and these may be brought about even with very slight physical exertion. Sometimes only parts of the body perspire, *e.g.*, the axilla, palm of the hand, sole of the foot, and the face.

Another frequent symptom of nervous significance is a varyingly severe *dyspnœa* or other *respiratory disturbances.* Sometimes these are so severe that they seem to be independent diseases and may simulate real asthma. Sometimes only a successful immune-blood therapy can differentiate between the two conditions. Sometimes these disturbances exist with the toxic symptoms accompanying menstruation, though only rarely in the degree in which it appears in the following case :—

CASE 10—K. J. (FEMALE), TEACHER, 22 YEARS OLD

She has had a cough since childhood. She had had pleurisy one and a half years before the examination. Headaches and vertigo occurred periodically. For a year the patient had been losing weight. Two weeks before each menstruation she had an attack of coryza and dyspnœa of such severity that she was unable to work. She did not dare to go out of the house, and had to remain in bed most of the time. Her two sisters had constant coughs. Her father and two sisters died of consumption. Physical examination showed a poorly developed, thin woman. Breath sounds were exaggerated over the right apex. Pulse 100, and temperature mildly subfebrile.

The patient was under treatment with interruptions for three years : first with TB vaccines, later with immune blood. During this time, the first year, the dyspnœa disappeared ; but reappeared later in a milder form, usually for three or four days before the onset of menstruation. Finally, during the third year of treatment, the dyspnœa stopped entirely.

In this case, undoubtedly, a sympathetic disturbance originating in the corpus luteum, can be looked upon as the cause of the dyspnœa.

The following also illustrates a case of dyspnœa :—

CASE 11—K. J., FARMER, 26 YEARS OLD

The patient suffered from dyspnœa for three years, chiefly when walking or during dinner. When he arose in the morning he felt very tired and was easily fatigued. For six months he had had severe night sweats and perspired easily during the day. He had pains in the arms, felt nervous, and lately was drowsy. Sometimes he had stabbing pains in the chest and had lost weight. His mother died of consumption fifteen years before. His stepmother had a severe cough for years. Physical examination showed a tall, well-developed, slightly emaciated young man with no physical symptoms, except a slight deepening of the right supraclavicular fossa. Pulse 88, weight 159 lbs.

The first immune-blood injection was given 3rd September 1920, 0·3 c.c. of the VIIIth dilution. A week later he had severe pains in the chest, with slight elevation of temperature. After the third injection he had a definite rise of temperature and dyspnœa lasting for three days. Following this reaction his condition improved steadily and the chest pains stopped. He no longer felt tired and was able to work. He was rarely troubled with dyspnœa, and when it did occur it did not last long. Finally this symptom, too, disappeared. On 2nd February his weight was 180 lbs., a gain of 21 lbs. in five months. Pulse 76. He was able to work constantly. Four months after the cessation of the treatment a mild dyspnœa again appeared, which was relieved by one injection of immune blood (IXth dilution). He bore excellently the heavy work of harvesting.

In the following case I wish to present two more characteristics of the " neurasthenic " type :—

CASE 12—L. S., SOLDIER, 23 YEARS OLD

When he came under my observation he had been in the garrison hospital at Temesvar for three weeks with a diagnosis of neurasthenia. During that time he was also examined by a neurologist, who prescribed bromides and valerian. For about a year the patient had had frequent headaches. He was startled out of his sleep at night and had vertigo. He had severe palpitation at times, lasting from half an hour to two hours, and often suffered from severe precordial pain. He had nervous dreams and awoke tired; he was easily and quickly tired and perspired readily. He was extremely nervous, easily excited, and sometimes entirely lost control of himself. He was very sensitive to cold. His hands and feet were cold even in summer. For one or two years he had had pains in the elbow and knees; for two years he had had stitches. At night he felt feverish. He had had a morning cough for six months. His father died of tuberculosis eight years before, and one brother had lung trouble. The patient was moderately developed, emaciated, and exceptionally pale. He showed no definite physical signs, except Pottenger's symptom over the apices.

Following the first immune-blood injection (IXth dilution), his subfebrile state subsided. After the second injection (VIIIth dilution) the headaches stopped, the vertigo diminished, and his sleep improved. He felt less nervous and had only an occasional palpitation and weakness in the morning. His appetite improved for a few days. Two days after the third injection he had night sweats for three nights in succession, had a few bad dreams, and awoke tired—a toxic reaction. Otherwise he felt fine. After the fourth injection he remained perfectly well. He gained 11 lbs. in weight in the six weeks of treatment.

The following case is especially instructive, since it deals with a young physician, 29 years old, who himself thought that he had neurasthenia, and who for a number of years was treated for it by many physicians. Finally he got entirely well after immune-blood inunctions. Upon examination—with the exception of paleness and a slight loss of weight—no physical signs were demonstrable. He writes about his own case as follows :—

CASE 13—DR M. L.

" I was healthy during childhood. For about four years I had suffered from frequent headaches and tired very easily. At night I slept a great deal, but had restless dreams, and during the day I was drowsy and sleepy. Later I became melancholy, depressed, and often very irritable. I lost a little weight and my face became very pale. Periodically I was troubled with anorexia, definite pressure in the stomach, and gaseous eructations. Backache and lumbago often occurred. I had a tendency to catarrhal affections. There was no fever, cough, or night sweats. My trouble was considered neurasthenia both by my physicians and by myself, and I tried practically all the various treatments recommended for this condition—hydrotherapy, drugs, and climatic treatments. But drug therapy gave as little improvement as a vacation at the seashore. My symptoms returned quickly after my trip and appeared in gradually increasing severity. I was decidedly sceptical about any specific tuberculous treatment, and did not allow even a diagnostic injection. Only after much persuasion did I consent to try inunctions of immune blood. I began with the Vth, later the IVth, and finally used the IIIrd dilution, five drops a day. At the end of the second week I really noticed a definite improvement. At first my appetite improved and my mental irritability subsided ; during the third week I had practically no headaches ; the tired feeling and the backaches ceased. The change in my condition was so marked that my friends (who knew nothing about my undergoing any treatment) noticed a definite improvement in my appearance and actions.

" Since then, nine months have passed, and my capacity for work has greatly improved. Although my exhausting work has increased very much, I have gained weight. I have not had to interrupt my work, and, in spite of a severe winter, have not been troubled with catarrhal affections."

CHAPTER IV

RHEUMATISM

Researches of Poncet and Leriche. Rheumatism of Serous Membranes. Rheumatic Eye Diseases. Erythema Nodosum. The Rôle of Thyroid. Common Origin of Graves' Disease and Rheumatism. Streptococcus Infections. Reactions of the Joints. Muscular Rheumatism.

PROFESSOR ALBERT, a surgeon of Vienna, who published a very popular text-book on surgery at the close of the last century, prefaced his work with the following words: "For 2,000 years we have been talking about rheumatism, and still, to-day, we do not know what it really is."

In the following pages I wish to contribute something to clarify the confusing syndromes grouped under the collective term of rheumatism.

In 1896 PONCET pointed out the connection between rheumatism and tuberculosis. Since then both he and his disciples have thrown considerable light on every detail of the subject through their observations and studies. The results of these have been summarised in a book published in 1909 in collaboration with LERICHE, with the title "Le Rheumatisme tuberculeux" (12).

According to these investigations, rheumatic disturbances of the joints may constitute the first symptoms of concealed tuberculosis, or may accompany a definite organic tuberculosis. The tuberculous origin of these rheumatic affections cannot always be determined by pathologic or bacteriologic examination, as the greatly attenuated infection presented in such cases is not capable of producing the characteristic symptoms of tuberculosis. The affections are clearly of toxic origin; only exceptionally do we find tuberculosis bacilli or tubercles on the synovial membranes of a joint considered rheumatic from a medical point of view. It is also exceptional to find a rheumatic joint that passes over into "fungus." On the other hand, the two diseases, rheumatism and tuberculosis, are often found together. According to Poncet, the fundamental nature of arthritism is for the most part nothing but attenuated tuberculous infection. However, the more evident visceral, and especially pulmonary, tuberculosis becomes, the weaker the rheumatic symptoms are, and vice versa. This behaviour, as we have seen in the first chapters, agrees with all the other symptoms of intoxications, and, like these, the appearance of rheumatism is related to a toxin sensitiveness.

According to the observations of Poncet and Leriche, tuberculous rheumatism may appear in acute or chronic form in one or more joints and sometimes may be localised in all of them. In acute cases we may find a sterile exudate in the joints, or only a hyperæmia with or without a swelling. In chronic cases, atrophic or dense hypertrophic changes of the bone may occur. The disease may appear as a progressive deforming polyarthritis or as a dry arthritis (*e.g.*, malum senile). Sometimes it appears in various deformities of the joints (*e.g.*, hallux valgus), or adhesions, etc. The tuberculous rheumatism, both in its acute and chronic form, may result in a synarthrodia. This is the common origin of many stiff joints, of most flat feet, and even of many cases of deafness (due to a synarthrosis of the middle auricular bones).

The question is this : Can we replace the term rheumatism by tuberculosis ? And again, are the forms of rheumatism of the joints, namely, the acute rheumatic arthritis and poliarthritis, of tuberculous origin or not ?

As far as the rheumatic inflammations of *serous membranes* are concerned, we can answer this question with a definite "Yes." The dry and serous pleurisy which was termed rheumatic long ago proved without doubt to be tuberculous. The *rheumatic eye diseases* are, without exceptions, looked upon to-day as tuberculous by most ophthalmologists. LIEBERMEISTER (6) is of this same opinion, and emphasises the fact that only in cases of latent or benign tuberculosis do we find these eye troubles (rheumatic keratitis, iritis, scleritis, chorioditis), and the more progressive the tuberculosis, the rarer are the manifestations of these eye affections.

Erythema nodosum is also counted among the rheumatic diseases. Often it coexists with rheumatism of the joints. Many authorities hold this to be of tuberculous origin. In every one of forty-eight children between the ages of 2 to 13 years, POLLAK found a strongly positive Pirquet reaction.

On the basis of a review of literature and mainly through my own observations, I am forced to conclude that, *in the vast majority of cases, rheumatic arthritis is nothing but one of the masked forms of concealed tuberculosis.* However, the question in the case of arthritis is not so simple as in the case of pleurisy where tubercle bacilli can usually be found, providing that this condition is caused directly by the bacillus. As in most cases of intoxications, so in rheumatic affections (at least, in a large proportion of cases), it is the *endocrine dysfunction* which determines the manifestation of the disease.

A number of French physicians, CLAISSE, LEVI, and ROTHSCHILD, long ago called attention to the thyroid origin of many cases of rheumatism, and related these cases to dysthyroidism. Lately, many others have established a relationship between acute rheumatism and functional disturbances of the thyroid. The duration of rheumatic attacks was shortened by EMIL SERGENT'S (13) administration of thyroidin. Sometimes, in acute rheumatism, we can show a painful moderate swelling of the thyroid. In Graves' disease, and also in the "fruste" form of this disease, we quite often meet with either a past or an active rheumatism, a fact which shows that both diseases are caused by the dysfunction of the thyroid. The common cause is the latent tuberculosis which brings about the dysthyroidism.

At the International Medical Congress held in London in 1913, I presented thirty-three cases of thyroidism caused by tuberculosis (14). In seven cases I noted more or less prolonged rheumatic arthritis. In most of these cases the arthritic pains began simultaneously with the symptoms of Graves' disease. The history of one such case is herewith given:—

CASE 14—K. A. (MALE), 32 YEARS OLD

Five years previously he suffered from arthritical rheumatism which led him to live for a time in Lipik, taking iodine baths. From that time he had palpitation of the heart, which appeared with such severity three years before that he could hardly walk. At times he had severe nervous attacks, sensations of fear, which improved after living at a high altitude (Tátra), where his physician diagnosed the case as Graves' disease. The attacks recurred often, and for this reason he went to Tátra every summer. He was tortured chiefly by sensations of fear and delusions, which often forced him to bed. During the more severe attacks he perspired freely and had diarrhœa; at other times he was constantly constipated. He had continuous palpitation which, at times, prevented even walking. He was troubled by constant insomnia for which he had been using wet packs and various narcotics, but in spite of these he slept very poorly. He was very nervous, and walking or his office work exhausted him greatly. His right knee often swelled and was painful. His mother had a cough for twelve years and expectorated blood for many years. A 22 year old sister died of consumption eight years before.

The patient, who was pale and poorly developed and badly nourished, showed a cicatrised process at the right apex. The thyroid showed a moderate general enlargement. Definite exophthalmus and Gräfe and Stellwag symptoms were present. There was a slight tremor of the fingers. The heart sounds were clear. Pulse 104. Urine negative.

In March 1909 I began inunctions of immune blood. After a few inunctions, the patient slept well without any drugs and his constipation ceased. His pulse soon came down to 88. After further inunctions with larger doses, *on the nineteenth day of the treatment he developed severe pains in the elbows, knees, and shoulders*, with a fever of 100·8°. He had to remain in bed for four days and slept badly. Previous to this, he had had no rise in temperature. Following this reaction, he felt perfectly well. His appetite increased greatly, his palpitation slowly subsided, and even long walks did not tire him. His psychic disturbances ceased very soon, but, after a severe psychic trauma, they returned for a short time. Finally they left him entirely. The swelling of the thyroid disappeared completely and the exophthalmus was only slightly perceptible. He has not taken any climatic treatment since beginning the immune blood. During the twelve years of my observation, he remained continuously well and maintained his capacity for work.

In this case we can see :—

1. Tuberculous environment ;
2. Concealed tuberculous infection ;
3. Severe neurasthenia of endocrinal origin ;
4. Graves' disease ; and, at the same time,
5. Rheumatic arthritis.

Upon the inunction of immune blood, the intoxication causing disturbances of the endocrines ceased, and with this all the symptoms disappeared and the patient was cured completely and permanently. It is significant that, at the beginning of the treatment, as a symptom of reaction, there was an acute arthritis with fever lasting for four days, but this never appeared again. The swelling of the thyroid also subsided.

The relationship of rheumatic arthritis with acute and focal infections complicates the question still more. Of course, the acute arthritis of gonorrhœa and pyæmic origin does not belong in this category.

In acute cases of rheumatism, the aspirated serum of patients always proved to be sterile. On the other hand, in 10 per cent. of the cases of blood cultures and in cultures taken from post-mortem cases of recent endocarditis, it was possible in the half of the cases to cultivate various strains of *Streptococcus viridans*. Recently, according to his claim, JAMES CRAIG SMALL (15) (Philadelphia) isolated a specific streptococcus, which he called *Streptococcus cardioarthritidis*. This he cultured from the blood and tonsils of cases of acute arthritis and, by means of the serum of animals immunised with this culture, he made rapid cures.

The disease often accompanies acute tonsillitis or pharyngitis, while the chronic forms may have some connection with tonsillitis and other focal infections, as, for instance, with infections of the teeth, or sinusitis, or, less frequently, with chronic appendicitis, cholecystitis, or salpingitis. In some cases arthritis is cured after removal of the focus of infection.

Among forty-five cases of acute polyarthritis, **Liebermeister** (6) showed the presence of the tubercle bacilli in the blood of 64 per cent. of the cases. In twenty-two cases out of twenty-eight, the tuberculin test was positive. In the physical examination of sixty-two cases, he found seventeen with organic tuberculosis and, of these, all except two were cured or improved by tuberculin treatment. In nine out of fifteen cases of rheumatic endocarditis, some with consecutive heart disease, the origin of the disease could without any doubt be traced to tuberculosis.

It is characteristic of all rheumatic affections that the acute forms frequently pass into the chronic, or that the rheumatism may appear at once in its chronic form and have a particular tendency of recurrence. In this feature it fully agrees with other forms of tuberculosis.

After presenting the above facts, I turn to my own observations.

Previous to my knowledge of the work of Poncet, I observed, with the use of both tuberculin and immune blood, the appearance of arthritic reactions in certain patients. Later, after close observations of these arthritic and muscular pains, I discovered that rheumatism frequently accompanies tuberculosis, but that rheumatism never exists in severe and advanced tuberculosis; rather, like other toxic symptoms, it accompanies only the benign or concealed forms, and if the tuberculosis because of a lessened immunity becomes progressive, the rheumatic symptoms cease. Not infrequently the pains appear after every injection at the beginning of the treatment, but they finally cease. Such are the following few cases :—

CASE 15—B. J. (FEMALE), 25 YEARS OLD

For years the patient felt stabbing pains and had frequent headaches and vertigo. Her appetite was very poor; she often had pains in her stomach. She felt tired in the morning, became fatigued easily, and slept very poorly. She had frequent pains in her arms and legs. For four years she had an oval swelling on the back of her right wrist (ganglion) which felt tender on pressure. On the right apex a small area of cicatrisation could be demonstrated.

Following the first injection of immune blood (0·5 c.c. of IXth dilution), on the third day fever, general ill-feeling, and pains in the extremities appeared, lasting for three days. The fever gradually subsided. After the second injection there was pain in the left wrist. The ganglion became smaller; after the third injection it was hardly perceptible; and after the fourth injection it disappeared entirely. At the same time a painful swelling of 4 cm. length developed at the junction of the second rib, gradually disappearing after one to two weeks. At this time she had severe pains in the stomach for an hour during the night, accompanied by fatigue and dyspepsia. After a few injections of small doses, all these symptoms ceased and the patient felt quite well during the entire period of observation.

CASE 16—MRS K. E., 24 YEARS OLD

Three years before she had had an attack of polyarthritis, and at that time had severe pains and swelling in the left elbow, knee, and hip joints. She was in bed with fever for four months. For a long time she coughed periodically. Lately she had had vertigo and pains in her stomach. For two years she had been sleeping badly, had confused dreams, and awoke with a tired feeling; she was very nervous; she had chills. For half a year her temperature was subfebrile and she lost weight rapidly. Four days after the first injection of immune blood (0·5 c.c. of the IXth dilution) a very severe pain appeared in her right wrist.

In the following case the reaction to the immune-blood treatment showed not only arthritic pains but also heart pains, indicating the tuberculous character of the previous endocarditis.

CASE 17—MRS P. E., 34 YEARS OLD

She had had a painful swelling in her left knee five years previous to the examination. and in her right foot three years previous. The swellings subsided after months of confinement to her bed. For half a year she had suffered from palpitation and was troubled by constant constipation for several months. Her appetite was poor and she was losing weight. For several weeks she had severe backaches and headaches. Her menstruation was regular. but for a few years had been profuse and had lasted for a week; this was followed by leucorrhœa for a few days. Her father had died of tuberculosis thirteen years before. and her sister a few years before. The physical examination showed that the patient was poorly nourished and pale. Exaggerated breath sounds were present in the apices. The heart sounds were clear. Pulse 84.

After the fourth injection of immune blood a severe pain developed in the left hip joint. which confined her to bed; but within three days the pain gradually subsided. Following this her appetite improved. She perspired less and gained in weight. The injections that followed produced severe pains in her heart. lasting for several days. After three months of treatment she felt quite well. She did not tire. and the backaches and constipation ceased entirely. Menses lasted for three days and were normal in quantity.

The specific treatment does not necessarily produce local reactions. Very often from the beginning of the immune-blood treatment we have only the antitoxic effect. and the cure of the patient goes on without any disturbing symptoms. As examples. I present the following severe cases :—

CASE 18—MRS A. V., 35 YEARS OLD

She had suffered from rheumatism for eleven years. The disease began with the middle finger of her right hand with progressive swelling of the joints; later the other joints of the hand began to swell. A year later her right hand suddenly swelled and caused her acute pain for some days. This acute condition soon subsided, but for years her hand remained swollen and painful. Still later her left heel became painful. For two years there was a slight swelling and severe pain in her left hand and right foot. She could hardly walk because of the great pain in the heel and sole of her foot; she felt very weak. She went to Pistany (Czecho-Slovakia) to take mud-baths for the treatment of her rheumatism. After this treatment her condition improved for a short time, but soon suffered a relapse and gradually became worse.

Other symptoms were the following: For five years she suffered from severe cramps in her stomach, which had grown gradually more acute. Her appetite was very poor and she continuously lost weight. She had suffered from constipation since childhood and had to take cathartics constantly. Menstruation began at twelve years of age; the periods were always regular but very profuse. For several years she menstruated every three weeks. Lately she had had leucorrhœa also. She never coughed.

The patient was pale and poorly developed and undernourished. Exaggerated breath sounds were found in the right apex. The heart sounds were clear. Pulse was 104. The knee reflex was strongly overactive. There was a decided tremor of the fingers. The second phalangeal joints of both hands were greatly swollen and painful, especially the right one. The metatarsal-phalangeal joints of both feet were thickened. The second joints of both large toes were enlarged. The first, second, and third fingers covered each other and were painful. The urine was negative.

The patient's temperature, which had been constantly febrile, fell below the fever line immediately after the first injection of immune blood and, aside from a few slight reactions of elevated temperature, remained normal. After a few weeks she was almost free from pain and was able to work. After three months of treatment she felt perfectly well, had no pain, and her appetite was consistently good. Her menstruation appeared every four weeks and lasted for three days. The leucorrhœa disappeared. Later, also, she was able to perform her housework easily and felt tired only on exceptional occasions.

The following case, which undoubtedly would have ended fatally without immune-blood treatment, is in reality a classic example of the more severe arthritic rheumatism. The case was treated in Budapest by one of my pupils, Dr Julius Biró.

Case 19—P. J. (Male), 30 Years Old

In 1899 he had been in the St Rokus Hospital of Budapest for eight weeks with acute polyarthritis, and again for three months in 1903. In 1909 he again applied for admission into the hospital because of severe pains in his hands and feet. He then spent five and a half months in the hospital; the pain appeared in various joints, one after the other, and grew constantly worse. Even the largest doses of salicylate preparations did not assuage his pain, and the physicians had to resort to injections of pantopon and morphiam. All kinds of therapy were used without avail. The joints gradually grew stiff. Because of his pain the patient could not sleep at all, and became exceedingly emaciated and quite marasmic. He was in this condition when Dr Biró put him under immune-blood treatment with the following physical findings:—

The patient was emaciated *ad maximum* and exceptionally pale. Over the right apex harsh inspiration and prolonged expiration were present. Almost all the joints of the extremities were swollen, also the vertebral joints, and all were very painful. An X-ray showed a high degree of rarefaction of the bones of the feet, a periosteal thickening of the ankles, and extreme atrophy of the right wrist and of the epiphyses of the forearms. Only the right hip joints had any active motion and this only to a limited extent. All the other joints had lost all active or passive motion, partly because of the great pain and partly because of the incipient synchondrosis. There was a strongly positive Pirquet reaction.

After the beginning of the immune-blood treatment the patient did not receive any medicine; neither aspirin nor morphia was given him. A week after the first injection of immune blood the pain lessened and the patient was able to move actively the joints of the lower extremities. Very soon active motion returned to the joints of the upper extremities. His appetite improved very noticeably. This patient, who for five and a half months had had a constant fever, became subfebrile after the second injection. After one and a half months of treatment he had no fever at all, and, at the beginning of the fourth month, his temperature went into a permanent normal curve. He improved surprisingly from day to day. After only one and a half months of treatment, when he had gained about 18 lbs. in weight he was able to go to the scales. His weight at this time was 105 lbs.; he gained constantly and his weight increased to 148 lbs. after five months of treatment, when (the middle of April) the patient left the hospital without any joint pains. Several years later he was still perfectly healthy.[1]

Under the conception of rheumatism there belong also the muscular pains known by the term of *muscular rheumatism*, which comprises a no less frequent symptom of benign or concealed tuberculosis. It may coexist with the arthritic pains, or it may be present independently; often it tortures its victim for years, or even all through his life. Especially frequent and prolonged is the pain in the muscles of the extremities and in the back of the neck. If we question the patient carefully about these symptoms, we can find these complaints in a large proportion of cases. Pain, at the beginning of treatment by immune blood or through the employment of larger doses of immune blood, may frequently appear localised in certain groups of muscles, or pain may be generalised as a symptom of reaction. A typical case is the following:—

CASE 20—G. B. (MALE), 39 YEARS OLD

Since his eighteenth year he had had constant pains in his shoulders and in the nape of his neck; for these pains he received various treatments without any result whatsoever. He constantly felt tired and had periodically severe headaches and frequent palpitations. He perspired easily. Recently he had slept badly. He had been gaining weight for the past year. The physical examination revealed a well-developed and well-nourished individual, with a slight shortening of percussion sound over the right apex. His pulse was 112.

---

[1] The chart of this case was presented in 1910 by Dr Biró, at a discussion after my lecture at the Royal Medical Association, Budapest; by Professor A. Poncet at the meeting of the Société Médicale des Hopitaux in Paris in 1911; and by myself at the International Tuberculosis Congress in Rome in 1912.

Shortly after the injection of immune blood (VIIIth dilution) the pain increased in severity, but soon decreased. Some days after the second injection he developed very severe pains in the shoulders and nape of the neck that lasted for four days. With further injections the pain finally subsided, as did the other symptoms.

Only in exceptional cases is it possible to demonstrate a swelling of the muscles. I had an opportunity to observe this on the battlefield in the case of a young officer whose left chest muscles were swollen and painful for a month, with a constant slight fever. I saw him a year later in my office, when I found an incipient tuberculous process in the apex.

Summing up the above, I present the following conclusions :—

The conception of rheumatism may be replaced, for the most part, by the conception of tuberculosis. The tuberculous virus in a state of attenuation may be responsible for the disease directly on account of its action on the serous membranes, or, exceptionally, in the joints, or it may act directly through its toxins, or indirectly through the affected thyroid. Eventually, in tuberculous intoxications, besides the presence of an inadequate thyroid, a *Streptococcus viridans* infection may also bring about or sustain the rheumatism, or may increase an already existent rheumatism. In such cases the removal of the focus of infection may improve or even cure the disease, but not necessarily. The disease never accompanies the severe progressive tuberculosis, because in these cases the partial immunity and the consequent hypersensitivity are not present. These last, as in the other forms of tuberculous intoxication, comprise the basis of rheumatism also. In the majority of cases the best therapy for this disease is the specific anti-tuberculous treatment, primarily immune-blood therapy. In certain (less frequent) cases, besides the specific treatment, we may consider the removal of possible foci of infection, as well as the dosage of thyroid.

Inasmuch as we can begin the specific treatment at the first attack of rheumatism, especially when it occurs in childhood, we may no doubt prevent the occurrence of many cases of heart disease.

Certainly there are cases of acute and chronic rheumatism which have no connection with tuberculosis, but these are undoubtedly of much less frequent occurrence. The general use of immune-blood therapy is destined to make clear, finally, this very important question.

CHAPTER V

NEURALGIA

Doubtful Origin of Neuralgias. Trigeminus Neuralgia. Sciatica. The Author's Own Case. Double Ætiology. Insufficiency of Thyroid.

THE ætiology of neuralgias is uncertain, but there is no doubt that chronic external and internal intoxications like lead poisoning, gout, diabetes, nephritis, and chronic focal infections play a rôle. They are often provoked by cold superimposed upon an existing predisposition. My experience proves that both common types of neuralgias, trigeminus neuralgia, and sciatica may form a symptom of chronic tuberculous intoxication, and in that case they can be completely cured by immune-blood therapy. How often this connection occurs, further investigations will prove. As in many other symptoms of intoxication, often the effect of specific treatment clears up the tuberculous ætiology. However, we may confirm this connection more or less when we take up the anamnesis, as we can then easily detect other customary signs of intoxication. The following case is typical :—

CASE 21—MRS T. J., 35 YEARS OLD

She had suffered from trigeminus neuralgia on the right side for nearly three years, since April 1919. In the beginning the pain recurred two or three times a day. Later it was almost always present and, finally, practically every minute in the form of a "jerking" pain. She consulted several physicians and tried many kinds of treatment—electricity, X-ray, blue-ray, different medicines ; she even permitted a healthy tooth to be extracted. Finally, in September 1918, she was advised to go to a TB specialist (Dr Pasztor, Temesvar, Roumania), who tried a cure with

Rosenbach's tuberculin. The neuralgic pain was augmented after the diagnostic injection. Also, in the beginning of the cure, the pain was augmented ; she even got a cramp-like pain in the stomach and gall bladder. The patient was hypersensitive. Finally her condition was greatly ameliorated by the tuberculin treatment, and the suffering of the patient, who had been near suicide, became bearable. She came to me in the early part of December 1920, that is, two years after the first treatment. The trouble had returned, but the pains were far less than before the tuberculin treatment.

Other symptoms were the following : She had suffered from headaches since childhood ; often she had severe headaches accompanied by terrific cramps of the stomach, which ceased only upon morphine injections. Occasionally she felt oppression of the heart. Her back had also pained her. She was very nervous. Her breath was short when working and she perspired very easily. She was constantly constipated and had used laxatives since childhood. Her first menstruation occurred in her 17th year, and at first it appeared only at intervals of six to twelve months. After she passed 20 her menstruation was regular, but ever since the first time she had experienced severe cramp-like pains with it. The patient was very well developed and nourished. Over her right apex there was a fine crepitation at the end of inspiration. There was pain upon pressing the exit point of the infra- and supraorbitalis.

I began the cure with the dilution No. X. of immune blood. After the first injection the facial pain diminished considerably. The patient's sleep was less disturbed by the pain and she was able to wash her teeth, a thing which she could not do before. After a larger dose, dilution No. VII., the pain returned only periodically ; finally, I succeeded in stopping the pains so that they occurred only occasionally, as sometimes when the face was washed, or simultaneously with menstruation. The first two menstruations were more painful than usual ; the following ones, however, were entirely painless. The cramps and constipation also disappeared. The treatment was continued for half a year, the largest dose being the dilution No. VII.

This is a typical case of tuberculous intoxication. Frequent headaches since childhood; late menstruation, at first with amenorrhœa, later with dysmenorrhœa; occasional severe cramps in the stomach; constant constipation; nervousness; free perspiration; oppression of the heart; pain in the limbs; and, in addition to all these, trigeminus neuralgia. The reaction of the first tuberculin treatment is noteworthy: the augmentation of the pain and the provocation of cramp-like pain in the stomach and gall bladder. As the result of the immune-blood treatment, the dysmenorrhœa first increased and then disappeared permanently, together with the stomach pains and the constipation.

Another of my cases was that of a young worker whom I observed at Budapest in 1919. The patient was brought to my institution in an ambulance, having collapsed on the street with a terrific pain in the face. On the painful side seven teeth were missing; the unfortunate patient had had them pulled out in the hope that the pain would cease. After a few immune-blood injections the pain entirely disappeared.

Among my *sciatica* cases there was an extraordinarily noteworthy one: the case of a woman 56 years old, who had been suffering from this disease for a year and a half and who was compelled to remain in bed occasionally. I had treated her adult daughter for tuberculosis of the lungs. I began to treat the mother with immune blood as an experiment. The result was most remarkable: after a mild reaction the sciatic pains soon lessened and, after a few months of treatment, entirely disappeared and the strength of the woman completely returned.

In the following history I consider my own case of trigeminus neuralgia worthy to describe. It is a veritable text-book case of the duofold ætiology of certain neuralgia:—

Case 22

In 1895, at the age of 19, I was in bed for seven weeks with acute polyarthritis. The rheumatic pains reappeared for four years, until finally they ceased upon my taking sun-baths. As a young physician I suffered much from insomnia, was very nervous, and for many years coughed throughout the winters. Because of my athletic build I did not even think of the possibility of tuberculosis. (Since that time my conception of tuberculosis has entirely changed.) It was only twenty years ago, when I started to practise the specific treatment of tuberculosis, that, merely for purposes of experiment, I began to give myself diagnostic tuberculin injections which proved strongly positive. Upon systematic tuberculin (PV) injections my neurasthenia entirely disappeared. I gained in weight, and felt very well. (The recognition of tuberculous neurasthenia was inspired mainly by the discoveries observed in my own case.) Later, whenever such symptoms as fatigue, insomnia, nervousness, etc., appeared, my normal state of health was restored by a few immune-blood injections.

During the winter of 1921-22, I organised TB dispensaries in the mountainous districts of Transylvania, and my office was in a dark, unheated cellar, where I spent hours daily and where I repeatedly caught severe colds. I attributed to this a slowly developing trigeminus neuralgia, which increased month by month. I was constantly exposed to bad weather, and the neuralgia appeared in a progressively severe form.

In course of the next summer I went to a flat district of dry climate, and it was to this change of environment and to regular sun treatment, and not to the immune-blood therapy employed in the meantime, that I attributed the disappearance of my neuralgia.

I came to the United States in the spring of 1924. After an acute catarrhal infection, my neuralgia soon reappeared here, reaching such intensity that I was forced to use morphine injections—although I could not tolerate morphia. Occasionally I was unable to work and my condition was desperate. Frankly, I did not believe in the tuberculous nature of my disease, because of its relation with the previously suffered colds and also that the acute cold in the head was so obvious. I turned to immune-blood injections only as a last resort. Upon the first injection a strong reaction manifested itself, *i.e.*, the pain increased. However, it soon calmed down and, after the fourth and fifth injections, my condition improved so rapidly that the connection was self-evident. I was very hypersensitive and could stand only the Xth and IXth solutions. I did not use stronger solution at all. The cure was so complete that in spite of catching repeated severe colds and a very bad winter, the pains entirely disappeared.

About eight months later, after a more severe cold in my head, the neuralgia reappeared. At that time I was convinced of the possibility of overcoming my disease, and treated myself as an objective experiment. After each injection I was able to feel the decrease of the pain and to note its less frequent occurrence. It proved most effective when I used the Xth and later the IXth dilutions daily. The complete disappearance of the pain occurred shortly.

Another recurrence happened a year and a half later—in December 1926—again after a severe cold. This time it lasted for about four weeks, but it did not nearly manifest itself in its previous unbearably tormenting form.

According to my present point of view, the acute and chronic rheumatism, which lasted for four years until cured by systematic sun treatment, should be regarded as the first manifestation of my concealed tuberculosis. The so-called neurasthenia, which lasted for years, and the coughing followed. Upon specific treatment the symptoms disappeared. Because of my profession I was constantly exposed to petty TB infections. My tendency toward neuralgia was due to the hypersensitiveness resulting from concealed tuberculosis, *plus* cold infections. I may state definitely that in the provocation of the disease, both the tendency (tuberculous hypersensitiveness) and the immediate cause, *i.e.*, the cold (coccus infection), were equally necessary. Neutralisation of tuberculous toxins stopped the neuralgia in spite of its having been increased by cold infections.

On the basis of this *duofold ætiology* of many cases of rheumatism as well as of neuralgia, we can make a great and in some cases a decided contribution toward clearing up the origin and nature of these diseases, and, consequently, make their definite cure possible. A few of my recent observations lead me to suspect that, just as in rheumatism, so in some cases of neuralgia, the dysfunction of the thyroid has a contributing part. In such cases a dosage of thyroid may aid in the cure. There is need of further observation in this field.

CHAPTER VI

THYROSIS

Connection between Tuberculosis and Thyrosis. Graves' Disease and Attenuated Forms. Results of Specific Treatment. Constitutional Inferiority.

ALL those who were lately centring their attention on the ætiology of *Graves'* or *Basedow's disease* and on thyrosis in general came unanimously and independently to the conclusion that there is an intimate interrelation between thyrosis and tuberculosis. The primary cause is a tuberculous infection of the lungs or bronchial lymph nodes, and this produces, secondarily, an irritation of the thyroid and sympathetic nervous system and, consequently, the symptom complex of thyrosis. It is rather significant that this causative relationship was discovered in approaching the problem from different angles. PONCET and LERICHE (3) through a pathological and clinical approach; HUFNAGEL (16), BIALOKUR (17), and POENARU CAPLESCU (18) by purely clinical, SAATHOFF (19) by specific diagnostic methods; and myself (20) by the experimental method, *ex juventibus*, after the specific action of immune blood. In 1909, prior to the appearance of the writings of the above authors, in connection with my first five cases of Graves' disease, I voiced my conviction concerning this causal connection in the monograph on tuberculous intoxication. This was considered the more daring view because of the novelty of my method of diagnosis and also because the immune blood became entirely discredited through the condemning criticism of a few authorities. ROEPKE, who considered Spengler's immune blood altogether ineffectual, expressed himself concerning my statements in the following way: "The curing of neurasthenic, hysteric, anæmic, and Graves' symptoms, which Hollós emphasises by systematic immune-blood treatment, does not prove that this substance has any curing effect on tuberculosis. With his idea that the symptom complexes described are the evidences of an early stage of tuberculosis and should be interpreted as tuberculous intoxication, Hollós will hardly be able to found a new school."

Contrary to this prophecy of Roepke's, the idea of tuberculous intoxication gradually caught a firm hold on the medical profession. With the researches of **Poncet** and **Leriche**, through which an entirely new light has been shed on the pathology of tuberculosis, it forms a complete unit. Of special interest is the fact that thyrosis, and, among these, even pronounced cases of Graves' disease, have been treated successfully, even completely cured, by immune-blood treatment. These factors point most decidedly to a tuberculous origin of these diseases.

At the International Congress of Medicine in London (1913), I published thirty-three such cases (17), (21). Among these, in twenty-one cases, definite and pronounced exposures to tuberculosis were found, considerably more from the father's than from the mother's side. Mild tuberculosis of the lungs was demonstrated (by percussion and auscultation) in twenty-eight cases ; both of these methods demonstrated it in fourteen cases ; by auscultation alone in nine cases ; by percussion alone in five. This leaves only five cases where pulmonary involvement could not be found with physical examination. I had the opportunity of treating twenty-six patients for a varying length of time with immune blood, most of them by the inunction method, some with the injection or with both methods. Of these, ten recovered, fifteen improved, and treatment was unsuccessful in only one case, a failure which could be accounted for by the patient's severe and unconquerable diabetes. This patient's father, husband, and child had all died of tuberculosis, and she herself had an apical involvement.

Special attention will be given to the five cases in which, as mentioned, neither physically demonstrable tuberculosis nor a history of exposure could be found. Four of these had marked Graves' disease with all of the characteristic symptoms and signs. One of the four improved very rapidly under immune-blood inunctions, soon regained the 32 lbs. lost in weight and even more; in a month's time the exophthalmus and struma disappeared. After half a year's treatment the patient was considered temporarily cured.

The second case showed, after four months of treatment, a disappearance of the exophthalmus, diminution of the struma, and marked general improvement. The third and fourth patients received only a short treatment, but, even so, an improvement and specific effect could be definitely shown. The fifth patient was a *fruste* case without enlargement of the thyroid, in whom, under immune-blood treatment, the pulse of 130 slowed down to 72, all the general symptoms and tremor of the hands disappeared, and, as a result, the patient could be considered cured.

The specific toxic reactions that arise mostly at the beginning of the immune-blood treatment are very instructive. In two cases, in the second and third week respectively, a polyarthritic pain and fever appeared; in another case a severe headache that lasted for two weeks occurred after the third injection; in still another, diarrhœa set in. In many patients these reactions manifested themselves in an increased tachycardia, lasting a few days, or in nervous symptoms. The beneficial effect of these reactions appeared in a more rapid improvement after they wore off. The two patients who, for many years previously, had suffered from pains in the joints were permanently freed from these pains when the reaction took place in the joints after the immune-blood treatment was begun. In all those cases where accurate temperatures were taken, I found either a rise of temperature or a continuous fever, which disappeared during the immune-blood treatment.

The researches of SAATHOFF (19) agree entirely in their results with my own findings. He examined forty-five cases of thyrosis specially for tuberculosis. Among these were six cases of Graves' disease. In this group there was only one case (one of the cases of Graves' disease) in which no tuberculosis was present, and this was the only one with normal temperature. The rest were all subfebrile, or had a slight fever; about half of the cases had mild pulmonary changes; some had but a suspicion of them.

In all these cases the X-ray examination made evident some pathological changes, chiefly in the bronchial glands; all of them had a more or less strongly positive Pirquet or subcutaneous tuberculin reaction. In a large majority of the cases the tuberculin treatment effected a very good result, and thus Saathoff could make the diagnosis in these, even *ex juventibus*.

Even those who did not purposely treat their Graves patients with tuberculin noticed its beneficial effect, although they failed to observe the causal relationship and did not search for it. In their text-book, **Bandelier** and **Roepke** mention two cases where the institution of tuberculin treatment was of a decidedly beneficial effect to both tuberculosis and Graves' disease.

The following case of **MacWatters** is very instructive:—

A nurse in a tuberculosis sanatorium became ill with Graves' disease, and did not improve even after many months of rest in bed. On the basis of his finding that the opsonic index of her blood against tuberculosis was diminished, MacWatters tried the tuberculin treatment. After the first injection ($\frac{1}{20000}$ mgm.), the cardiac symptoms increased and the thyroid became larger and painful. After a few days a decided improvement set in, and after ten days the thyroid was smaller than before the injection. After continued injections of small doses of tuberculin a negative phase followed, namely, the thyroid swelled and the general symptoms changed for the worse. Then followed a positive phase with marked improvement. The opsonic index increased and with it the symptoms improved. In three months the patient gained 20 lbs., tachycardia appeared but rarely, the exophthalmus disappeared almost entirely and the struma completely.

Even the usual conservative treatments of the thyrosis point to their tuberculous origin; the rest cure, dietetic treatment, high altitude, and seashore climate are just as beneficial in most cases of thyrosis as in tuberculosis.

All those symptoms which are characteristic of Graves' disease are also constantly accompanying symptoms of tuberculous intoxication. Among symptoms of nervous origin, there are present in both: headaches and dizziness; a tired feeling and ready fatigue that not infrequently increases to total disability; insomnia or great somnolence; nightmares, restlessness, excitability, emotional instability, and various tremors. Among sympathetic disturbances of nervous origin there are: The difference in size of the pupils of the eyes, vasomotor disturbances, and increased perspiration. Among the functional disturbances of the internal organs, we find gastric and intestinal symptoms, namely, lack of appetite, more rarely voracious appetite, nausea, pain in the stomach, diarrhœa, and constipation; various disorders of menstruation; various functional disorders of the heart, *e.g.*, palpitation, rapid and changeable pulse which often exceeds the rate of 140 per minute, variability of blood pressure, frequent slight albuminuria, metabolic disorders such as rapid and extreme loss of weight, occasionally glycosuria. All these are frequent and characteristic symptoms of both Graves' disease and concealed tuberculosis.

Increased function of the thyroid is usually accompanied by an increase in the size of the gland, but this is noticeable only after a fair size has been attained. According to BIALOKUR (17), this can be seen and diagnosed only when the gland reaches more than double its normal size. It is for this reason that pronounced symptoms of thyrosis may be present without a demonstrable increase in size of the thyroid. The constantly irritated and hypertrophied gland which is functionally increased and altered, augments the symptoms of the original tuberculous intoxication and even complicates it with new symptoms. Since the primary cause is a general one, a disturbance of the other glands of internal secretion may also be present. That is why we meet so frequently with definite symptoms of thyrosis which point to disorders of the ovary, the adrenals, the thymus, and the pancreas. The connection between ovary and thyroid is obvious; thyroid hypertrophy is often present during menstruation, pregnancy, or postpartum state; and very often Graves' disease begins after pregnancy. The connection with the thymus is well known. In Graves' cases, the hypertrophy of this gland is frequent and, in a few cases, the symptoms of Graves' disease have been made to disappear through its removal. On this basis it is easy to explain and understand the changeable and confusing picture of Graves' disease, and it is this that makes it necessary for us to talk of pseudo-Graves' disease ("Basedowoid"), besides the true Graves' disease, to differentiate vagotonic, sympatheticotonic Graves, to consider it now as neurosis, now as a primary disorder of the thyroid, etc.

That the relationship between the thyrosis and tuberculosis was not noted was due to two reasons. First, the symptoms of tuberculous intoxication were previously unknown, or, rather, misinterpreted; second, in the thyrosis, as generally in all cases of intoxication, the tuberculosis itself is always benign, demonstrable hardly or not at all, and is, in the majority of cases, a concealed process. The irritation of the thyroid and other glands of internal secretion is provoked only in these latent, benign cases of tuberculosis with their marked toxin hypersensitiveness. On the other hand, in the severe progressive cases of tuberculosis, with their immunity but insufficiently produced if it is present at all, there is no disturbance of the thyroid, nor is there any other symptom of tuberculous intoxication. A decrease in the immunity from any cause will be accompanied by a regression of the Graves' symptoms, as well as of the symptoms of intoxication in general; the tuberculosis will become progressive, while the reaction syndrome of the organism, *i.e.*, the thyrosis, will recede to the background.

The anatomical changes of the thyroid in tuberculosis were observed by the French. First, **Roger** and **Garnier** (1900) described the sclerotic changes of the thyroid in tubercular cases. **Poncet** and **Leriche** (3) showed by their clinical and pathological researches that the thyroid acquires a state of constant irritation from the toxins of the bacilli, or from an attenuated virus of tuberculosis. A chronic inflammatory condition ("tuberculose inflammatoire") develops, in consequence of which the thyroid hypertrophies and its function increases or becomes pathologically altered. The hypertrophy of the thyroid can be nodular or diffuse, and can be present for a while without causing the symptoms of thyrosis. COTTE describes a case from Poncet's clinic, where a parenchymatous struma that developed in a short time was made to disappear entirely by immune-blood treatment. I also noticed in my tuberculous patients either circumscribed or diffuse enlargement of the thyroid without the symptom of thyrosis. One such case was that of a young man, 27 years old, with a round circumscribed swelling the size of a walnut in his thyroid. After the first injection of immune blood the swelling increased and became somewhat painful. After the second injection the pain increased slightly, but the circumscribed tumour disappeared without leaving a trace.

The Graves' goitre has no characteristic histological picture, but the thyroid is diseased in all cases, producing proliferation of the epithelium and colliquation of the colloid as its most noticeable features. Besides the thyroid changes, in about three-fourths of the cases a hyperplasia may be found in the thymus, in the lymphatic apparatus, and in the adrenals and, likewise, some chronic changes in the ovaries.

I published detailed case histories of patients with thyrosis (thirty-three cases) in my article " Die Tuberculose Etiologie der Thyreosen " (14). From these let me cite the following two cases :—

CASE 23—P. J. (FEMALE), 38 YEARS OLD

The patient had palpitation for some time. She had lost 31 lbs. during the last three or four months, was nervous, and slept poorly. She had no appetite and was extremely tired all the time. Her husband died of consumption. The patient, who was well developed but noticeably emaciated and pale, showed no affection of the lungs. There were exophthalmus, diffuse hypertrophy of the thyroid, and tremor of the fingers. Her pulse was 140.

She improved rapidly on immune-blood inunctions.

After a month the exophthalmus and struma disappeared and the general symptoms improved markedly. Her pulse became 110. After a month's treatment she felt perfectly well and had no general symptoms. She gained 32 lbs., with an additional increase later on. After two years' rest without treatment she had a mild recurrence with a slight enlargement of the thyroid and loss of weight. She did not appear for further treatment.

CASE 24—K. M. (GIRL). 16 YEARS OLD

Four years previously she had had a slight attack of articular rheumatism. She also had headaches for many years, with increasing frequency. Two years prior to the examination she had a severe attack of palpitation which had recurred. She was extremely nervous. She was troubled by frequent spells of dizziness. She slept very deeply and was sleepy even during the day. She always awakened with a tired feeling in the morning and became easily exhausted. She had a good appetite, but was losing weight in spite of this. For the last week she had diarrhœa. Her menstruation was irregular and accompanied by a severe headache during the flow. Lately she had coughed a little.

Her grandmother died of consumption. her mother had a chronic cough, and one sister a mild case of Graves' disease. Two adult brothers died of consumption.

The patient was very poorly developed and undernourished; she was emaciated and very pale. Over the left apex there was impaired resonance on percussion. The thyroid showed a moderate diffuse enlargement. There was a slight exophthalmus and tremor of fingers. The heartbeats were marked and, when the patient was in an upright posture, a systolic murmur over the apex was evident. Her pulse was 154. Weight 90 lbs. She had a slight fever.

A week after immune-blood inunctions. pains of the joints developed, lasting three days. After this reaction quieted down, the fever diminished and finally disappeared. After three months the pulse was between 90 and 100, palpitation was diminishing, struma, exophthalmus, and tremor were gone. She gained 13 lbs. and later 26 lbs. in all.

Probably other infections also can cause disordered function of the thyroid and, consequently, thyrosis. This disorder may be brought on even without an infection, purely through the nervous system, as proved by experiments with animals. A psychic trauma may precipitate Graves' disease, too, and in such instances we may justly speak of a neurosis as spreading to the sympathetic nervous system. **Friedrich Kraus** (Berlin) claims that Graves' disease is an abnormal reaction of the autonomic nervous system and that its basis is a *constitutional inferiority*. In my opinion, the latter is usually due to an inadequacy of the endocrine system, and its origin is very frequently a tuberculous intoxication acting through many generations. It is unquestionable that tuberculosis plays a most important rôle in the ætiology of thyrosis. Every thyrosis should be examined very carefully for tuberculosis, the significance of which can be determined very often only after a course of specific treatment. An enlargement of the thyroid, unless we have to deal with endemic goitre, is always suggestive of tuberculosis, of which it is not infrequently the first symptom.

CHAPTER VII

EPILEPSY

Diagnosis *ex Juventibus*. Epilepsy as a Symptom of Reaction. Endocrinal Dysfunctions. Polyglandular Treatment.

THERE is no doubt that tuberculosis also plays a part in the pathogenesis of epilepsy. I found the first statement about this in the book of PONCET and LERICHE (3) in the form of a short note, according to which, in 1900, PIC found 55 per cent. tuberculous heredity among 160 epileptic cases. Still more valuable is the statement of WELEMINSKY (22). He discovered the tuberculous origin of epilepsy through specific treatment, as for diagnosis *ex juventibus*. He treated four typical cases of epilepsy with his tuberculo-mucin. Two of these healed quickly, and in the two others, owing to the short time of observation, there was no definite result but a marked influence was shown, *i.e.*, existence and improvement of known tuberculous intoxication symptoms. I consider it worth while to quote one of his cases. It refers to a very robust girl, 15 years old, without objective symptoms. She had not yet menstruated. Her hands and feet were strikingly cold. Recently she had had night sweats, stitches in the side, and ovarial aches. She had her first epileptic attack in October 1914, observed by WELEMINSKY. It passed off in the usual manner, with unconsciousness, opistotonus, grinding of the teeth, rotation of the eyes upwards and inwards, no reflexes, etc. The attacks recurred every fortnight. The girl was taken to a hospital, but there was no amelioration. Weleminsky gave the first tuberculo-mucin injection in May 1915, which was repeated once a week. After the first injection the attacks ceased, stitches in the side, ovarial aches, and perspiration disappeared.

Before knowing these literary data, however, my attention was called to the following case: A peasant woman of middle age came to my office in 1915 because of her cough. She had suffered from epilepsy for many years. As a result of using immune blood, which I injected systematically for her tuberculosis, the epilepsy disappeared.

I related this case to one of my friends, a physician in Szeged, whose wife had died not long before of consumption. He was much surprised, and said that his 11 year old daughter had suffered from epilepsy for a year when she was 4 years old. The child had symptoms of latent tuberculosis; she died later in her seventeenth year from consumption.

On the basis of these two cases I had already supposed that there might be some connection between tuberculosis and epilepsy, and as I had charge in 1919 of the Tuberculosis Research and Teaching Institute in Budapest (which was founded during the Hungarian Revolution and closed with the political change), and as a great deal of internal disease dispensary material was at my disposal, I did not fail to admit any epileptic case to my ward. They were four in number, and, by chance, in all of the four, symptoms of tuberculous intoxication were demonstrable. All had typical epileptic attacks, markedly influenced by immune-blood injections. One of these had his daily attacks considerably less frequently, in spite of the omission of the usual bromides, and then only in negative phases. Owing to the short time of observation (from two weeks to two months), there was no definite result in any of these cases.

The following cases are from my later practice in Temesvar :—

CASE 25—MRS M. H., 25 YEARS OLD

Three months before the examination, after a cold, she had had a cough lasting three weeks. Since then she had been slightly subfeverish. She had suffered from headaches for years and sometimes felt dizzy. She had complained four years before of polyarthritis, especially in the wrist and calcaneus, of half a year's duration. At that time she had had pains in the lumbar region and in the left shoulder. She sometimes slept badly and had exciting dreams. She was nervous; at times she had palpitation. When she was 18 years old she had had several epileptic attacks for a month. She had also had a single attack two years before. The patient was well developed and moderately nourished. Over the right apex there was a shortened percussion sound with slightly harsh breathing. Her pulse was 92.

The first injection of immune blood was administered 15th January 1921, 0·5 c.c. of dilution No. VIII. and every day some drops of dilution No. V. were rubbed into the skin. Headaches and subfebrility soon disappeared. The second injection with dilution No. VII. was given on 18th February. The next day she had an epileptic attack of half an hour's duration.

In this case *the epilepsy which had been absent for two years appeared in the course of immune-blood treatment as a symptom of reaction.*

CASE 26—MRS N. F., PEASANT, 26 YEARS OLD

She had been kicked by a horse six years before the examination and had been greatly frightened. Two weeks later she had suffered the first of her epileptic attacks. In time these became more and more frequent, even occurring many times a day. She was unconscious for a half to one hour and often hurt herself. She had been treated at various places, but without any result. She had complained for the past three weeks of great pain in back and chest which increased from day to day, and since then had lost 17 lbs. She coughed a little, had a small amount of bloody sputum, and perspired at night. She had no appetite, slept badly, was easily tired, and felt pain in all her limbs. Four months before she had been delivered of her fifth child. The patient was fairly well developed and slightly undernourished. Over both apices there were shortened percussion sound, Pottenger phenomenon, and slightly harsh breathing behind. Over both bases there was dullness the size of a palm, especially on the right side, with decreased breathing and bronchophony. Heart sounds were clear. Pulse 84. Weight 107 lbs.

As the result of systematic immune-blood injections (once every ten to fourteen days) and daily inunctions, the pain in the chest and back first increased, but soon decreased slowly; in addition, the exudate of the pleura gradually diminished, and finally, after the fifth injection, disappeared. The patient soon acquired an appetite and regained her 17 lbs. after six months of treatment, when she felt perfectly well. After the first injection she once more had an epileptic attack, and during the whole time of observation (seven and a half months) she had a convulsion only once, in the third month of treatment. This occurred after a great fright. At the same time—after a larger dose of immune blood—other symptoms also appeared as toxic reactions, such as loss of appetite, disturbed sleep, pain, and the loss of 3½ lbs. in weight. We may consider this attack also as a symptom of toxic reaction. All these symptoms disappeared after the injection of a small dose. I did not hear of the patient's later fate.

CASE 27—C. F., WOODWORKER, 35 YEARS OLD

He had suffered from epilepsy for the previous five years. His attacks were generally at night (he had them only twice in the daytime), often every second or third night, sometimes even twice in the same night. Sometimes they ceased for a week, once for a whole month. Early in the evening he would feel the attack coming, would become deaf, and very sleepy. The attacks were of ten to fifteen minutes' duration, and during them he often hurt himself. Other complaints: he had frequent headaches and great dizziness. He perspired profusely day and night. He was susceptible to colds, his feet and hands were cold, and his appetite changeable. He sometimes had severe palpitation. He was easily tired, very forgetful, and ill-humoured. He had a slight cough for the past four or five years, but at times it was severe. He had lost 37 lbs. during the past eight years. His father had succumbed sixteen years before to consumption; died at the age of 45 after being ill for one year.

He had been an alcohol addict. All his six brothers and sisters died in childhood. The patient was tall, moderately developed, thin, and pale. Over both apices there was Pottenger phenomenon. The right apex was sunken, with shortened percussion sound; posteriorly rough. harsh inspiration. The heart sounds were clear. Pulse was 80.

The first immune-blood injection with the Xth dilution was given on 15th November 1912. Soon after the injection his headache and subfebrility disappeared. The second injection was given on 24th November with the IXth dilution. He had his first epileptic attack twelve days after the beginning of treatment, on 27th November. The attack did not recur till 12th February, that is, for two and a half months, and this attack was also a very slight one of only two minutes' duration. From that time the patient came for treatment very irregularly (once a month only), the last time being on 19th May. He had only four attacks during that time, that is, six attacks in the whole six months (from 15th November till 19th May). The result would certainly have been much better with systematic treatment. I know nothing further about the patient.

In the following case we can well recognise the disturbance of various endocrine glands and of the sympathetic nervous system :—

CASE 28—R. I. (GIRL), 28 YEARS OLD

She had an epileptic attack after a fright at the age of 3, which recurred four times before her ninth year. The first menstruation was at 11, when she was already a big, strong girl and seemed fully developed. The first bleeding lasted for three months. After that she always had regular but very painful menstruations. Since her sixteenth year she had felt quite weak before or during the menstruation and her whole body felt stiff; she even fainted for a few minutes and her face perspired afterwards. She was usually very chilly before menstruation. She had a hemicrania and often nausea, and vomiting also. Sometimes she had nausea without headache. She often felt pain in the occiput. Since puberty she had had strong palpitation after every slight excitement. She was very nervous. She got up feeling greatly fatigued. Sometimes she perspired very much at night. She was almost always cold; at times she felt hot. Her hands and feet were always cold. She had been dizzy very frequently for several years, especially after being more active than usual. She flushed and became pale easily. For the last eight years her eyes had often been bloodshot and inflamed, especially in the fall and in the spring. At that time she slept very deeply and was sleepy during the day also; at other times she slept restlessly. When her eyes were first inflamed, eight years ago, she had rapidly lost 22 lbs. in weight and could not regain them. Her father was a drunkard and died of consumption fourteen years previously, at the age of 43. The patient was tall, well developed, and slightly undernourished. Hands were cold. Pulse 84. Weight 136 lbs.

In this typical case of tuberculosis intoxication, we may point out the following syndromes of endocrinal origin, which show disturbances of ovary, thyroid, hypophysis, and supraren:—

1. Early puberty, menorrhagia, dysmenorrhœa.
2. Neurasthenic and hysteric syndromes (so-called).
3. Vasomotor disturbances and perspiration.
4. Rheumatic eye disease.
5. Epilepsy.

It is noteworthy that at the beginning of the inflammation of her eye she lost weight, and at every time it recurred she was constantly sleepy and slept deeply, while at other times she slept restlessly.

The patient came to my office in Temesvar at the end of June 1921, just when I had to leave the city for a year. Therefore I referred her for immune-blood treatment to her own physician (Dr Tyrman), who gave the injections according to my prescription. When I returned to the city I saw the patient once more on 23rd November 1922. She had received eleven immune-blood injections from Dr Tyrman, and since then she had gained 22 lbs. The inflammation of the eyes, as well as headaches and dysmenorrhœa, had quite disappeared and had not recurred. All other symptoms had disappeared, too, but the occipital pain, palpitation, and dizziness began once more, accompanied by a cough. After renewed immune-blood treatment she first had to overcome reaction symptoms, especially great fatigue in the morning and headaches ; then she felt well. She was very hypersensitive, and I did not inject a larger dose than a VIIth dilution.

Recently it has become widely known that in the ætiology of genuine epilepsy the dysfunction of certain endocrine glands plays an important part. The disturbances of thyroid, parathyroid, and gonads are especially important. The administration of the glandular substance not only supplements the defective function, but stimulates the organ in question to activity. Among the cases of S. R. KAGAN (24), in Boston, the condition of an epileptic girl was considerably ameliorated by giving corpus luteum. Also attacks during puberty or menopause ceased on administering ovarium or orchid substance and recurred after discontinuation. Several writers emphasise the rôle of thyroid for neutralising toxins, the disturbances of which cause epilepsy. I may mention here BOLTEN (23) (Haag), who had very good results with dosage of thyroid substance in many cases of genuine epilepsy.

I believe it appropriate at this point to introduce a case of W. C. PARKER (25) (Mt. Vernon, Ill.). It was that of an anæmic young girl of frail physique, who complained of dysmenorrhœa and other menstrual disturbances, chronic constipation, and acne. She was very nervous, irritable, and sleepless ; the thyroid had become enlarged. When she was 17 years old she had had an epileptic attack which did not recur until her twenty-fifth year. Then the convulsions were repeated every month, especially during or near the menstrual periods. The attacks continued to recur. She suddenly became mentally deranged, with hallucinations, periods of excitement or of depression, and for six months her mind was a blank to all normal perception. In a State hospital a slow physical and mental improvement took place. The epilepsy and all other symptoms disappeared except for amenorrhœa, which slowly developed for a few years. The patient went home. Later on, a scant menstruation occurred at fairly regular intervals. After a few months she once more felt depressed and irritable, had headaches, and the convulsions reappeared.

Now, Dr Parker began a polyglandular treatment of ovarian, posterior pituitary, and thyroid extract. Menstruation became regular; constipation disappeared; she had no more acne; she felt well and had no more convulsions during the whole time of observation (ten months). The epilepsy disappeared as a result of the polyglandular treatment, as did all the other symptoms, which are so frequently symptoms of chronic tuberculous intoxications, *i.e.*, dysmenorrhœa and other menstrual disturbances, headache, constipation, nervous symptoms, acne, etc. According to my own opinion, the patient was suffering from concealed tuberculosis, and all her symptoms were the result of endocrine disturbance caused by chronic tuberculous intoxication. All these symptoms were completely counteracted by a suitable glandular, *i.e.*, *symptomatic*, treatment; but the same effect would have been produced if immune blood had been used, *i.e.*, *ætiological* treatment. However, just this successful symptomatic treatment proves excellently the connection of epilepsy with endocrine disturbances.

In the ætiology of epilepsy there are, no doubt, several factors—for instance, a certain hereditary predisposition. The cases of Weleminsky, as well as my own cases, prove that a great part of genuine epilepsy is a syndrome of tuberculous intoxication which acts in the hypersensitive organism through disturbances of endocrinal functions.

CHAPTER VIII

DYSMENORRHŒA AND OTHER MENSTRUAL DISTURBANCES

Endocrinal Dysfunctions. Precocious and Retarded Menstruation. Irregular Bleedings. Dysmenorrhœa. Amenorrhœa. Histological Changes.

There was considerable progress in the study of menstrual disturbances when search was made for the cause of these anomalies, not in the pathological changes of the uterus but in the functional disturbances of the ovaries. This ætiological connection is experimentally proved by the fact that such anomalies have been ameliorated, even cured, by administering ovarian hormones. Naturally, ætiological investigation progresses in its search for further causes of these functional disturbances, and certain writers think they find them in the disorders of the nervous systems, especially of vagus and sympathicus, in pathological constitution as " asthenia," " infantilismus," " vagotonia," etc. In the final analysis, however, the ætiology of *these* ætiological factors remains in darkness. The question lies open in most cases : What is the cause of the disorders of vagus and sympathicus ? What is the cause of asthenia and infantilism ? etc.

Through my investigations I have arrived at the conclusion that *the greatest part of menstrual disorders are of tuberculous origin, and that they can be completely cured, or, at least, ameliorated through specific antituberculous treatment.* The clearing up of this ætiology is of great importance, not only from a therapeutical but also from a diagnostical point of view, as the disturbances of menstruation are often the first symptoms of a tuberculous intoxication. Besides the menstrual disorders, there is always some other symptom or a whole series of symptoms to be found.

In our climate menstruation begins normally at 13 to 15 years, not infrequently at 11 to 12 years, and this precocity as well as the retarded menstruation beginning after 16 years of age, is suggestive of tuberculosis. The disturbances of menstruation appear sometimes simultaneously with other symptoms of tuberculous intoxication, sometimes as the first symptom ; or they follow symptoms already existing before puberty. They may appear in most varied forms. Menstruation, normal until a certain time, appears more frequently, even twice a month, or in other cases will be delayed for days or weeks, or still longer. The term of bleeding may be shortened or prolonged, the loss of blood remarkably copious or scanty. A very frequent symptom of intoxication is amenorrhœa, lasting for months, often for years.

Among the disturbances of menstruation, *dysmenorrhœa* merits most attention. The pains are mostly localised in the uterus and the surrounding region, often accompanied by great sacral or abdominal pain. These disorders often last for days and the patients become quite exhausted. The dysmenorrhœas are usually accompanied by many various general symptoms, among them to be found perhaps all of the symptoms which I recognised as characteristic of tuberculous intoxication. Most frequently there are headaches, sometimes in the form of tormenting migraine, dizziness, excitability, sometimes even with psychic disturbances, feeling of fatigue, palpitation, stomach-aches, constipation. Less frequently there are diarrhœa, dyspnœa, and much perspiration.

Dysmenorrhœa, as well as other disturbances of menstruation, appears either at the first menstruation or later, together with other symptoms of intoxication, eventually, with manifest symptoms of tuberculosis. In these so-called secondary dysmenorrhœas, either the infection was later (or more probably its activity was aroused later), or the ovaries began to react later.

I published my discoveries in 1907 together with the gynæcologist, C. EISENSTEIN (26). E. GRAFENBERG (27) confirmed our investigations. He proved this connection between dysmenorrhœa and tuberculosis, and recommended the tuberculin treatment as therapy in cases of primary dysmenorrhœa. On the other hand, he did not think the secondary dysmenorrhœa to be of tubercular origin. Contrary to his opinion, a great many of my cases absolutely prove that there is no difference between primary and secondary dysmenorrhœa from an ætiological point of view.

I made a detailed report of the result of my research (28) at the International Tuberculosis Congress in Rome (1912), but as my collection of charts is not now in my possession, I can only cite my statistics of that time.

Up to 1912 I collected data from 712 women regarding their menstruation. Unfortunately, only 351 women were asked about the time of their first bleeding. Among these, 46 girls menstruated too early—before the age of 13—15 of these at 10 and 11: 66 girls menstruated too late—after 15—12 of these between 18 and 21. Therefore, among these 351 girls, 32 per cent. menstruated too early or too late.

Pronounced dysmenorrhœa, *i.e.*, painful menstruation, usually accompanied by the various general symptoms, occurred in 270 cases, and in 138 of these cases the menstruation was painful from the first bleeding. In the rest of the 132 cases, menstruation began to be painful after one or more years. Amenorrhœa appeared in 64 cases; it lasted as long as four years. Among these there was a bad prognosis very frequent in 26 cases.

Among those women afflicted with marked menstrual disturbances (dysmenorrhœa, excessive irregularity, too copious or scanty bleeding, amenorrhœa), 188 cases were under my treatment for at least two months. Among these, 126 cases were discharged as cured, 37 as ameliorated, and 24 in an unchanged condition.

Of these 126 cured cases, there were many among whom the menstrual disturbances did not recur even for several years after the treatment. Upon their recurrence, I repeated the treatment and they disappeared once more, together with other symptoms of intoxication. In many cases I could observe that under treatment the first bleeding, or, sometimes, the first few bleedings, were more painful than before. In other cases, pain was evidenced under treatment where there had been no previous pain. This was a sign of local reaction in the affected ovaries.

In nine of the cases, menstruation began during the course of my specific treatment, and five of these patients were between 16 and 20 years old. In all of these cases the bleedings were regular and without pain from the beginning. In one case they were irregular, but after further treatment they also became regular.

The menstrual disturbances, as well as the other symptoms of intoxication, are for the most part in the concealed and, therefore, in the benign cases of tuberculosis. An exception is amenorrhœa, which occurs often in severe cases with a bad prognosis.

Poncet and Leriche (3) arrived partly through clinical, partly through pathological, observation at the same result which I obtained through experimentation, *i.e.*, that tuberculosis is the predominant feature in the ætiology of menstrual disturbances. In all of these cases they also found local changes of the inner genital organs, which they summarise under the name of *inflamed tuberculosis*. There are chronic inflammatory changes which, although of tuberculous origin, are without any specific sign of tuberculosis either in gross appearance or microscopically. These consist of changes of the connective tissue of the uterus, chronic inflammation of the tubes, microcystic degeneration of the ovaries, chronic inflammation and fibrous hardening of the parametrium.

Only a small number of my cases were gynæcologically examined, but these gave results entirely similar to Poncet's. These were mostly chronic changes of adnexa and peri- and endometritis. These chronic inflammatory changes were found even in three virgins. Hypoplasia and atrophy respectively were found in the uterus of a virgin and of some women with amenorrhœa. All these cases consisted either of severe dysmenorrhœa or amenorrhœa, which reacted to the specific treatment with temporary or definite cure.

In a similar study of this relationship, Gaston Cotte (29) from Poncet's clinic finds that the majority of women who suffer from tuberculosis show dysmenorrhœa. In a series of seventy such women whom he treated with tuberculin, he reports forty as cured of the dysmenorrhœa.

In the following I introduce a few cases of various menstrual disturbances treated with immune blood :—

CASE 29—J. V., 18 YEARS OLD

Her first menstruation was in her thirteenth year. It was regular and in the beginning without pain. For the last one and a half years it had been accompanied by very great pains lasting three or four days ; she also had headaches and dizziness. The patient was nervous and often had epistaxis. She had recently become very constipated and tired in the mornings. She had had a cough every winter since childhood. She was moderately developed and undernourished. There was harsh breathing over the left apex. The thyroids were slightly enlarged. Pulse was 100. Weight 99 lbs.

After a few immune-blood injections she acquired a very good appetite. The first menstruation was still accompanied with the usual great pain, but after this all menstruation became absolutely free from pain. Under this treatment the patient gained 22 lbs. in four months, felt consistently well, did not cough at all, and her menstruations remained quite free from pain.

CASE 30—MRS W. L., 23 YEARS OLD

Her first menstruation was in her eighteenth year. It was always irregular ; during the two or three years prior to the examination it recurred every two or three weeks with a duration of a whole week. On the first day she was in great pain and was obliged to lie down. The week before, she had had hæmoptysis ; she had coughed and felt pain in her chest. The patient was somewhat underdeveloped and badly nourished. Over the right apex the percussion sound was slightly shortened with harsh breathing. Her pulse was 78. Weight 119 lbs.

Soon after the first immune-blood injection the patient had a better appetite, perspired less, and her cough ceased. The first menstruation was accompanied by less pain, so that the patient was not obliged to lie down. After that time all menstruations became painless and regular with normal duration. In five months she gained 9 lbs., although she had to work hard and could not afford nourishing food.

CASE 31—MRS G. T., 24 YEARS OLD

She was sent to me in June 1911 by her physician because of her menstrual disorders. Her first menstruation was at 14 years; it was scanty. She married at the age of 16, and she menstruated once at this time; since then only a few drops of blood appeared at intervals of three or four months. A dilatation of uterus was performed in 1910, and at that time she bled for eight days; since then she had had no bleeding at all. She had never been pregnant. She had complained of constipation since childhood. She often felt ill and sometimes had palpitation. She coughed in the evening. Two years previously she had had a lymph node operation of the neck. Over the lungs there was scarcely an alteration to be found.

After four months of immune-blood treatment the menstruation became regular and painless with normal loss of blood of two or three days' duration. Two years later, in February 1914, the patient appeared in my office once more. The menstruation had been normal up to that time, but for the last two months she had been nervous and lacking in appetite, had coughed a little and had had backaches. The bowels had moved regularly since the treatment. At this time I found harsh breathing over the right apex, and I continued the treatment for four months. She did not appear again until two years afterwards, when she told me that the bleeding had always been regular with a duration of three days, and was accompanied by only a slight pain. However, during the last three months she again had only a few drops of blood with very severe, cramp-like pains. Recently she had often had palpitation, variable appetite, sometimes a headache, and had been easily tired. I once more began the immune-blood treatment. She soon had menstruation accompanied by great pain. The following menses were regular and painless.

In this case it was possible to cure with immune blood an amenorrhœa which had lasted for ten years. Two years after the first treatment it reappeared slightly, associated with severe dysmenorrhœa which ceased once more after renewed treatment.

I treated the following case in 1907 with C. SPENGLER'S vaccine on the basis of his dualistical method. To summarise this method let me say that the vaccine (filtrated bouillon culture and pulverised bacilli) produced from bovine tubercle bacilli has a therapeutical effect on human TB infection (heterotoxin); on the contrary, the vaccine produced from human bacilli acts toxically (izotoxin), and vice versa. So it is possible to produce symptoms of intoxication or to increase existing symptoms through injection of the izotoxin. In the following case the dysmenorrhœa, stopped by heterotoxin, *was experimentally produced by izotoxin*, and cured once more, finally, by heterotoxin.

CASE 32—MRS J. K., 38 YEARS OLD

She had coughed every winter for the last twelve years, and seven years before had spat blood for two months. She sometimes felt cold or hot; she perspired during the night; she often could not sleep; her appetite was usually poor. She had felt precordial pains for the last four years, had palpitation and headaches, sometimes dizziness. She had her first menstruation at 13 years; it was regular and painless. The first painful bleeding occurred in her twenty-sixth year. Since then she had had violent pains for two or three days before the bleeding, which continued with such intensity that she was obliged to lie down at every period for two or three days. During the bleeding she was dizzy and greatly excited. The patient was moderately developed and nourished. The right supraclavicular fossa was slightly sunken with shortened percussion sound. Over the right apex posterior there was harsh breathing with prolonged expirium and dry râles. Slight subfebrility.

I gave injections with human TB vaccine. After two weeks the patient slept well and had a good appetite. Headache, palpitation, and precordial pain disappeared, and she was no longer so tired. The first menstruation was absolutely painless, a thing which surprised her very much, as she was aware of the menstruation only because of the bleeding; the second menstruation was also absolutely without pain. She was not excited at all, and all accompanying symptoms were totally absent. She felt well, was not tired, and her cough diminished.

She became saturated with 0·1 mg. TB vaccine—a slightly painful infiltration indicates the saturation—and after this I tried to continue the treatment with bovine vaccine. After the third injection, toxic symptoms were perceivable, which were manifested in backache, cough, excitement, and dysmenorrhœa at the next menstruation. Then I went back to the human vaccine; with its injection all symptoms disappeared. During the one and a half years of observation, all menstruations were absolutely painless. In the meantime, at the end of 1908, I once more treated her, this time with immune blood.

CHAPTER IX

PSORIASIS

As is well known, a whole series of skin diseases are due to toxins of various kinds ; and the influence of tuberculous toxins, also, is the cause of many such chronic diseases. I emphasise especially *chronic eczema* and *psoriasis*, which immune blood cured temporarily or permanently in several cases. At this point I wish to concern myself only with psoriasis, which also, according to **Poncet** and **Leriche**, is mostly of tuberculous origin. **Weleminsky** (30) was the first to cure several cases of psoriasis with his tuberculo-mucin.

We do not find psoriasis in acute or subacute forms of tuberculosis nor in severe chronic consumptives, just as we do not find in these the other syndromes of tuberculous intoxication dealt with in the previous chapters. Like those other symptoms, psoriasis, too, appears with hypersensitivity. According to recent observation, the disturbances of the thymus also play a part, and many authors have had successful results from X-ray treatment of this gland. In the United States this sickness is seldom found in the negro —a phenomenon, the explanation of which I suggest in Chapter II.

I wish to publish here the history of two of my cases, which indicate very convincingly this connection with tuberculosis and also the successful treatment. Both patients had also shown other signs of tuberculous intoxication. By the immune-blood treatment the existing symptoms of intoxication disappeared after various reactions, the abnormal temperature disappeared, and a distinct reaction of the eruptions of the skin took place, with ultimate healing.

CASE 33—MISS M. H., 28 YEARS OLD

She was healthy until her twelfth year, when she developed psoriasis which covered her whole body. The condition existed a year, when it disappeared, though not entirely, and recurred at short intervals. It cleared up only after two sojourns at the seashore for a period of half a year each time. The patient received all kinds of treatment —X-ray, Alpine lamp, ointments, etc. She had suffered since her fourteenth year with severe headaches, which were sometimes of a whole week's duration. This condition had improved recently, but she still suffered acute headaches after each menstruation. She was often dizzy, especially before menstruation, and had suffered since childhood from diarrhœa. She had been, until recently, very tired in the mornings, was inclined to perspire, and also had had night sweats a few years before. She had been losing weight, and three to four years before the examination she had reduced to 80 lbs. She was extremely nervous, irritable, and occasionally had uncontrollable crying spells. She often had pain in the back, sides, and thighs. She was easily chilled and her feet were always cold. The first menstruation began at the age of 14 ; the flow was scanty and of one day's duration. She had had dysmenorrhœa since her seventeenth year. Her father was very feeble in his youth and had coughed for a long time. One brother died of tuberculous meningitis at the age of 1½. The patient was very pale, weakly developed, and poorly nourished. The right apex was slightly sunken with slight Pottenger phenomenon ; the movement of the right shoulder was lessened. Pulse was 60. Weight 93 lbs. There were a great many psoriatic eruptions on the head, arms, thighs, legs, and trunk, ranging from the size of a lentil to that of a sixpenny piece.

From the first immune-blood injection (14th January 1921) with 0·5 c.c. of the VIIIth dilution, the eruptions began to itch severely and new eruptions appeared. She had never had itching before. After the second and third injections (dilution Nos. VIII. and VII.), the itching increased and the eruptions became pinkish in colour. After the second injection she developed a very severe headache, which recurred three times successively. After the third injection she suffered great faintness and dizziness. The itching continued. The patient began to acquire an appetite, which gradually increased. Soon after the general condition improved, the feeling of fatigue disappeared, the bowels moved well, and menstruation became normal. After the fifth injection the lesions began to pale and shed, and after two and a half months of treatment were partly gone and partly shed. The temperature, which at first was 95° to 97° F., gradually approached normal as the treatment progressed.

Case 34—Mrs J. B., 28 Years Old

The patient had suffered with psoriasis all her life, with periodic improvements. She had used all kinds of internal medications and ointments. She had been constipated from childhood and always had to take laxatives. During the period of puberty she had suffered from prolonged headaches. She slept very deeply and was sleepy in the daytime; was ill-humoured and nervous and tired very easily. Occasionally she had suffered from backaches. She had had dysmenorrhœa since the beginning of menstruation. The patient was fairly developed and moderately nourished. Over both apices a strong Pottenger phenomenon was present; minimal crepitation over the left. No fever. Pulse 92. Psoriatic eruptions on elbows. knees. back. and thighs.

The first injection was given (13th December 1920) with 0·5 c.c. of immune blood No. IX. The eruptions began to itch the next day. and this continued for three days. On the fourth day there was a slight rise of temperature (99); three days later, 100·4 for one day. At the same time new eruptions developed and the old ones itched for two days. The eruptions were brighter in colour. Constipation disappeared. After the third injection the eruptions were much brighter and multiplied. The feeling of fatigue was augmented and the constipation and headache returned (toxic reaction). All these symptoms disappeared after the injection with dilution No. IX. After further treatment all toxic symptoms (headache, constipation, nervousness, dysmenorrhœa) completely disappeared. A local reaction in the temporo-mandibular joint appeared in the meanwhile, with painful swelling for three days. The patient gained 9 lbs. The psoriatic patches cleared up, with profuse desquamation, leaving pigmented spots. The temperature, which fluctuated greatly in the beginning, became stabilised.

CHAPTER X

GASTRIC AND INTESTINAL DISTURBANCES

Disturbances of Appetite. Nausea. Heartburn. Secretory Disturbances. Stomach-ache. Gastric Ulcer. Habitual Constipation. Diarrhœa.

GASTRIC complaints play an important part in the symptomatology of tuberculous intoxications. They may be of sympathicotonic as well as of vagotonic character, and for the greater part they are also of endocrine origin.

Lack of appetite is very frequent. It may be obstinate and constant, resisting all medication ; or temporary, and in this case periods of poor appetite alternate with periods of normal appetite. Sometimes the patient has a ravenous desire for food, but loses his appetite after a few bites. Quite often there is a distinct aversion for certain dishes, and nausea and even vomiting, children more frequently than adults ; but also those who are often critical and hard to please develop the very best appetites and tolerant stomachs after a few injections of immune blood.

Different forms of stomach-ache are very frequent, appearing either before or after meals, mostly in the form of pressure symptoms. Frequently there is a stubborn *heartburn* or a severe stomach-ache which often leads one to suspect a gastric ulcer. The physician, making a test meal, believes he has found the cause of the complaints in the increased or decreased acidity, whereas *the disturbances of secretion as well as of motility* are consequences of the tuberculous intoxication only. In 50 per cent. of his cases of incipient tuberculosis, KLEMPERER (31) found secretory changes of the stomach, partly in form of hyperacidity, partly of hypo- and even anacidity.

Sometimes the patient will be attacked suddenly by a severe cramp-like pain in the stomach, which returns from time to time and which, in many cases, is so severe as to necessitate the use of morphine. As these symptoms are accompanied chiefly by the previously mentioned nervous disturbances, a false diagnosis of neurosis of the stomach is frequently given and directs the attention away from the real trouble.

Moreover, there is not only this possibility of mistaking an ulcer, but also *gastric ulcer* itself exists, in many (perhaps even in most) cases, of tuberculous origin. As local causes we find hyperacidity, circulatory disturbances of the mucosa, *i.e.*, anæmia and spasmus of the blood vessels; and, as a consequence of vomiting, or even without vomiting, hæmorrhagical erosions develop.

Stomach-ache, even the most painful stomach cramps, may manifest itself as a local reaction to the immune-blood treatment in cases where it has been present in the anamnesis. These pains may permanently cease after so strong a reaction if the specific treatment is correctly given. In some cases every reaction is accompanied by more or less severe pain in the stomach.

The following two cases, for instance, are characteristic :—

CASE 35—MRS K. F., 35 YEARS OLD

From her thirty-second year she suffered from very severe stomach-aches which lasted from half an hour to one hour, or even to nine hours, nearly every day, at which times she often vomited. At that time she had a fair appetite, but she could eat very little. She had suffered from constipation ever since childhood and her bowels moved only after taking laxatives. She had had headaches for a long time. Recently she had become nervous. She had pains all over her body; in the morning hours she was very weak and she tired very quickly; was sleepy all day long. Her heart sometimes ached. During the autumn, before the examination, she had felt stitches, which afterwards returned again. Her hands and feet were always cold. Her menstruation came at regular intervals but lasted only one day. She had coughed for months, especially recently.

She had lost 13 lbs. in the last two months. A sister of 17 had died of tuberculosis.

The patient was well developed and nourished. Over both apices there was a marked Pottenger phenomenon, especially on the left side; over the left apex there were shortened percussion sounds and harsh breathing posteriorly. Pulse was 88.

The first immune-blood injection with the IXth dilution was given on 22nd December. On the 28th she had a slight rise of temperature and a *very severe stomach-ache lasting two days*, which necessitated her staying in bed. During this time she also had a severe headache and felt very weak. After that she occasionally had only slight attacks of headache and did not require to take laxatives. After the second injection, on 4th January, with the same dose her bowel movements were regular, she had an excellent appetite, and she was able to do heavy work. After a greater dose of immune blood (VIth dilution), she suffered a mild stomach-ache which ceased after the injection of the IXth dilution and never appeared again. Coughing also completely ceased after the second injection. After cessation of the treatment for three months, constipation appeared again with ready fatigue, slighter appetite, and insomnia. All these symptoms immediately disappeared after a single injection of the IXth dilution (18th June).

In this case *the lytical reaction was followed by severe pain in the stomach*, which had not appeared for the last three years, showing that the sickness, although arrested, was not cured. Such reactions following a lysis may be subjectively unpleasant, but they often assure a definite cure.

CASE 36—G. T. (GIRL), 28 YEARS OLD

She had suffered from stomach-ache and nausea for about ten years. Sometimes she vomited, mostly gastric juice. For a month she had had constant stomach-ache and had no appetite. Sometimes she suddenly had a ravenous appetite which, however, ceased with the first bite. Recently she had been constipated. Since childhood she had suffered from headaches and for years from backaches. She tired easily. Occasionally she had day and night sweats. Lately she had menstruated every three weeks with a flow of a week's duration; she lost much blood and had severe cramp-like pains, accompanied by a bad headache and vomiting both before and after menstruation. There were a slightly shortened percussion sound and increased breath sounds over one apex. The patient was tall, moderately developed, and slightly nourished. The epigastrium was painful on pressure.

After four months of immune-blood treatment her stomach-ache disappeared and her bowels became regular. The menstruation gradually became painless, the last period coming at the regular interval and lasting only two days. She gained 5 lbs. in four months.

The disturbances of the intestines usually begin at the same time as those of the stomach, but they may also be present independently. *Constant constipation* may even be the very first symptom of tuberculous intoxication, especially in childhood. My experience has shown me that functional constipation is very frequent, and in the majority of cases of tuberculous origin. It may appear from time to time, or may alternate with diarrhœa. It may be present as a transitive symptom, lasting for weeks or months, but it may last for years or may even trouble the patient for his whole life. For years it may resist all forms of treatment, and constant improvement is seldom achieved. Sometimes all members of the same family suffer from constipation, and the patients have to use laxatives and enemas all their lives. Text-books usually state that chronic constipation is very frequent with anæmic, neurasthenic, hysteric persons, but if the basic trouble has been cured, constipation also ceases.

Constipation resulting from tuberculous intoxication is quickly relieved by immune-blood treatment. Sometimes a single injection or a few inunctions, or, as I have found with small children, a few doses given internally, often suffice to produce a cure.

In the following cases, constipation could be produced in a partially cured patient, along with other artificially aroused toxic symptoms, by large doses of immune blood and could be relieved immediately by a small dose, neutralising the toxin.

CASE 37—B. A. (BOY), 12 YEARS OLD

He had suffered for more than half a year from constant constipation and he had constantly needed laxatives. From time to time he had had headaches. He slept poorly, was depressed and ill-humoured, and had almost complete anorexia. The child was undeveloped, poorly nourished, and pale. His pulse was 108.

After daily inunctions of immune blood of the Vth dilution, his appetite improved, his sleep was better, and his bowels moved regularly. Soon his headache ceased and his pulse fell to 84. The treatment was continued with slight doses of immune-blood injections; the boy's complexion became rosy and euphoria was soon reacquired. For experimental purposes larger doses were tried (IIIrd, IInd, and Ist dilutions). After the fifth injection the mother complained that for four days the boy had suffered from a severe headache, complete anorexia, was feeble, and during that time his bowels had not moved. After a single injection of the VIIth dilution his condition improved very shortly and the patient slept well on the same night. On the following day his headache, feebleness, and constipation were gone. After a few further injections of small doses the child remained permanently healthy.

The following cases will well illustrate very severe constipation:—

CASE 38—R. L., NURSE, 29 YEARS OLD

She was healthy until her sixteenth year. After that she became anæmic, pale, and lost her appetite. She complained of headache and feebleness. She constantly took iron and arsenic. In spite of these tonics, her condition continued for three years with slight improvement.

From her eighth or ninth year she had suffered constantly from constipation, which never improved and she continued to use laxatives. Her bowels moved only every seven to ten days, causing her very great discomfort. She had given birth to a child nine years before; since then she had always had violent pain at evacuation, and she asserted that she had greater pain at bowel movements than at childbirth. Appetite was fair, menstruations were irregular and painful. She had coughed a little for the past few years. One brother and her husband died of consumption. In both apices I found evidence of slight cicatrisation. Pulse was 108.

I treated her exclusively with daily inunction of immune blood. Immediately after the third inunction her bowels moved every second day without trouble. Soon she acquired a normal appetite, and the closely measured food of the hospital, sufficient up to that time, proved insufficient. Inunctions of bigger doses brought slight toxic reaction, *i.e.*, drowsiness, headache, and constipation, lasting three days. Then she began her inunctions every second day, whereupon the toxic symptoms ceased. During the treatment of three months, the patient had regular bowel movements every day or every second day without any trouble.

CASE 39—MRS K. J., 32 YEARS OLD

She had suffered from constant constipation for the past two years. She constantly used laxatives, but nevertheless often had no movement for a week. For the past two years she had suffered from pains in the left kidney, and lately in both. During this time she had lost considerable weight. Her appetite was bad; she often had nausea and vomiting. Of late she had had night sweats. Sometimes she was dizzy; from time to time she had headaches. Menstruations were at regular intervals, but lasted two weeks with a profuse flow. She had not menstruated for the last two months. In the City Hospital of Szeged they found a fibroid of the uterus the size of two fists, but before operation she was transferred to my care for immune-blood treatment.

After three weeks of injections her appetite became good; her headaches, nausea, and vomiting ceased; also, *constipation disappeared*. During six weeks of treatment she gained 14 lbs. and had regular movements of the bowels without laxatives. Kidney pains ceased during the last four weeks of treatment. In the meantime she menstruated with a flow lasting for three days. Following this, a hysterectomy was performed and the patient left the hospital in a very good condition.

This case merits particular attention, because it was the supposition that both the menorrhagia and the constipation were caused by the large tumour, whereas both symptoms disappeared through immune-blood treatment before its removal.

Just as constipation in tuberculous intoxication is caused by endocrinal disturbances due to the sympathetic nervous system, so also is diarrhœa.

The seventh case proved how ovarian disturbance, caused by chronic diarrhœa for years, was cured by giving ovarian tablets. It is known that constipation and inflation of the bowels often appear at the beginning of menopause. We often meet obstinate diarrhœa as a prominent symptom of hyperthyrosis, whereas the hypothyrosis is most frequently associated with constipation. The destruction of suprarenal bodies (Addison's disease) is also accompanied by diarrhœa. This is the basis of understanding the quick cessation of constant constipation as well as diarrhœa through neutralisation of the toxins by immune-blood treatment.

I introduce a few cases of diarrhœa in the following :—

CASE 40—MRS R. R., 29 YEARS OLD

A year before the examination she had been feverish for a long time and had been bedridden for weeks. Since then she had suffered *constantly from diarrhœa* and had lost 22 lbs. In the beginning she had watery, painful stools eight to ten times a day, and because of this condition she was always under medical care. Although for half a year she kept to a strict diet prescribed by a specialist, she continued to have a watery stool three times a day. She had had a poor appetite for a long time, which, however, improved. During the last year she had suffered from three severe attacks of gastralgia. For years she had had headaches from time to time, together with nausea.

Recently the headaches had occurred more frequently, and sometimes she was dizzy and chilly. Her sleep was very deep; she drowsed in the daytime. She was tired in the morning and was easily fatigued by walking. She was nervous. Her menstruations were regular, scanty, slightly painful. Her husband had been coughing for a long time. Over both apices of the patient, who was well developed but emaciated, there was a slight degree of Pottenger's phenomenon. Hands were cold. Pulse 92. Weight 120 lbs.

The first immune-blood injection was on 20th February 1923, with 0·5 c.c. of Xth dilution. Simultaneously, daily inunction with the VIth dilution was given.

6th March. Bowel movements twice a day; well-formed stool. Good appetite. To-day and yesterday menstruation with diarrhœa.

After further treatment she developed an excellent appetite and ate well. The diarrhœa ceased completely. I raised the dosage very slowly, but, following the VIIth dilution (29th May), there were again diarrhœa, pain in the abdomen, and palpitation of the heart. All these symptoms ceased after injection of the IXth dilution. I completed the treatment in July. The patient was in a very good condition without any diarrhœa. Her irregular and subfeverish temperature became normal. She gained 20 lbs.

I saw her once more during March 1924. She had been continuously well, bowels were regular, and she weighed 142 lbs. (a gain of 22 lbs.).

CASE 41—GY. M. (MALE), 35 YEARS OLD

He had been weak all his life. He had suffered from diarrhœa ever since his sixteenth year. He had a watery stool with meteorism often five or six times a day. From time to time he had a great intestinal pain, alternating with constipation. The year prior to the examination he was under constant medical treatment without any good result. His test-meal showed achlorhydria, and since then he had been taking diluted hydrochloric acid. His appetite was good. He felt cold; his hands and feet were always cold. He had a dull pain in the head and was sometimes dizzy. He arose fatigued and he tired easily. He slept well, but was sleepy during the daytime. Backache sometimes troubled him. His father died at 60. A brother of his father died at 20 of consumption. All other brothers and sisters of his father (ten in number) died in childhood. The patient was poorly developed, undernourished, and pale. In the apices there were cicatrised remnants of a fibrous tuberculosis.

Under the immune-blood treatment, lasting three months, the diarrhœa almost completely disappeared, except in a mild degree which followed a few injections of immune blood. He proved to be so hypersensitive that I could not raise the doses over the VIIIth dilution. Before completing the cure he was obliged to leave the city.

CHAPTER XI

OTHER SYMPTOMS

Headaches. Chest-ache. Cholecystitis. Appendicitis. Angina. Pain in the Kidneys. Leucorrhœa. Coryza. Ear Troubles. Eye Symptoms. Hæmorrhages.

APART from symptoms already discussed, there are many symptoms and syndromes which play a rôle in connection with concealed tuberculosis as consequences of the chronic intoxication, and these merit separate description. Among them we may first mention *headache* as the most frequent symptom.

It was believed for a long time that the frequent headache of tuberculosis was connected with an anæmia of the brain, and it did not attract any particular attention. CORNET, for example, in his monograph on tuberculosis, writes only the following about it: "We often find headache, dizziness, tinnitus due chiefly to an anæmia of the brain which is usually present in consumptives."

But such a connection with anæmia is out of the question, for even headache, like other symptoms of intoxication, appears long before the manifestation of consumption, often as a very painful symptom, and often as a sign of reaction in the course of the specific treatment. It is not infrequently the first sign of the sickness, while physical examination is still negative.

The painful area occupies either the whole head or only some local region such as the forehead, parietal or occipital areas, and sometimes it appears as hemicrania. At times it begins in childhood, but more often before adolescence, and may afflict the patient for years and even decades. When the concealed form of tuberculosis assumes a progressive stage, the headaches cease like other symptoms of intoxication. Patients frequently consult doctors and take large doses of numerous medicines for the headaches when they could be cured by tuberculin or immune blood.

The cause of the headaches may be some local change, especially a chronic inflamed condition of the dura. For the most part, however, they are of endocrinal origin and are produced by disturbances of the thyroid, hypophysis, and ovary. The rôle of the latter is obvious when the headache accompanies menstruation. I introduce the following from my cases :—

CASE 42—MRS S. H., 35 YEARS OLD

For six years she had suffered from a continuous headache which had forced her to consult many physicians and to take the usual various analgesics and sedatives. She constantly awoke with a headache. For a year she had had palpitation and had suffered from insomnia. Her appetite was good. The patient was strong and well nourished. On the right apex there were a few fine, dry râles. Pulse was 88.

After two injections of PV (Perlsucht Vaccine) her headache entirely ceased, and therefore she did not appear for further treatment until a year and a half later. Up to this time she had been quite well ; now she began to have headache and dizzy spells again, but in a mild form. Associated with these, she often had precordial pain, palpitation, and disturbances of respiration. She was sleepy in the daytime. Menstruation was slightly irregular. At this time I found on the right apex only rough breathing. Pulse was 92.

After the second immune-blood injection she was taken with unusually great pain over the heart, which ceased after three days. After two more injections she felt perfectly well and did not return.

CASE 43—M. P. (MALE), 29 YEARS OLD

Four years previous to the examination he had perspired every night for a year, and was told that he had incipient tuberculosis. Since then he had suffered very frequently with severe headaches. He was a well-nourished man of athletic build, with harsh breathing sounds over the left apex.

After a diagnostic injection of 0·1 mg. ATO and PTO, a very strong subcutaneous reaction developed, especially after the PTO. After two months' treatment with immune-blood injection the headaches disappeared.

CASE 44—W. I. (GIRL), 16 YEARS OLD

From the age of 10 she had frequently suffered from severe headaches, which lasted for hours. Of late she had had a constant headache, sometimes associated with dizziness. Her appetite was capricious and she often complained of gastralgia. She was troubled by obstinate constipation, and her bowels moved with great effort once every three or four days. Her menstruation began at the age of 13, was regular and without pain in the beginning, but very painful during the last year, so much so that she had to lie down for one or two days. Before the bleeding she was dizzy and had a severe headache. Three years previously she had had pleurisy which lasted for a month. Since that time she had not developed. She did not cough. The patient would allow neither examination nor injection; therefore, I treated her exclusively with inunction of immune blood. After a week she had only a slight headache. The next menstruation was without any pain. Her appetite was good and her bowels moved regularly. She felt quite healthy three months after beginning the inunctions. Her headache had completely disappeared, in spite of her having had to study for school examinations. Each menstruation was painless. She gained over 6 lbs. in three months. It is to be noted that the cervical and post-auricular lymph nodes became swollen during the third week of treatment and remained painful for three days as evidence of a reaction occurring in these lymphatics.

Besides headaches and other painful symptoms discussed in the previous chapters, such as stomach-ache, rheumatic pains, neuralgia, and dysmenorrhœa, there are still several other painful symptoms of concealed tuberculosis. The tuberculous origin of these symptoms was made particularly clear and quite certain by immune-blood treatment. This proves experimentally the existence of the "inflamed tuberculosis" of Poncet and Leriche. Anyone who, like the author, has performed thousands of autopsies, knows well the appearance of chronic inflammations of serous membranes around organs. These are shown by adhesions of the pleura, pericardium, and diaphragm, more or less firm and usually superficial, also by a pericholecystitis, perigastritis, perisplenitis, perihepatitis, perimetritis, etc. Until now we had no idea that these scarred tissues and adhesions appearing here and there in and at times around every organ, are in causal connection with chronic tuberculosis of the peribronchial lymph nodes or apices of the lungs. In such cases we search in vain for the tuberculous tissue. Very exceptionally do we find tubercles or tuberculous granulations. For the most part the clinical symptoms appear only in cases of attenuated infection and in those with lytical immunity.

These regions mentioned above usually react with strong pain in the course of the specific treatment. Especially well known are the *chest-aches*, *backaches*, and the *precordial pains* which appear mostly in the form of stitches. Their frequent spontaneous appearance sometimes guides the physician to the real sickness. Often, however, these pains are diagnosed as rheumatic pains, a fact which would make no difference if this "rheumatism" were recognised as a manifestation of tuberculosis. Especially noteworthy are the painful syndromes which impress the physician as being independent diseases and frequently are the cause of needless operations.

In my practice I have met a great number of patients whose chief complaint was *pain over the gall bladder*. The pains appeared in attacks like gall-stone colic, or in the form of dull pains lasting for a long time, or in sharper pains like those in cholecystitis. At other times the localisation is difficult to determine and the pain is diagnosed sometimes as gall stones, sometimes as gastric ulcer. The sickness may continue for months and years, with frequent exacerbations. On the other hand, it may appear in the form of a single or a few isolated attacks. In all such cases a whole series of typical symptoms of tuberculous intoxication are present, and in most of them there was also present a slight fibrous process involving one apex. After one or two painful reactions following the immune-blood treatment, these pains disappeared temporarily or permanently. The symptoms not infrequently pass away in the form of a typical gall-bladder colic. Sometimes this pain had not appeared for years before the immune-blood treatment, and it reappeared once more after the first, second, or third injection, as a symptom of reaction and as a sign that the focus, although improved, had not healed. In one of my cases I began the immune-blood treatment with a man 40 years old, who was facing a gall-bladder operation, and the results of my treatment made the operation unnecessary. After the first injection the pain disappeared. I treated him for four months, during which time all other symptoms of intoxication ceased and the patient gained in weight. I received a letter from him two years later. He was well and the pain in the gall bladder had not recurred.

It is not a rare occurrence that pain in the gall bladder appears only during the course of immune-blood treatment as a specific reaction, although the patient may not have had any gall-bladder pain before. Such is the following case :—

CASE 45—MRS P. T., 28 YEARS OLD

She had suffered from a stomach-ache for months, at first before and, recently, after her meals. At times she was constipated ; at other times she had diarrhœa. She had no appetite. For the three weeks prior to the examination she had suffered every morning from headache and dizziness. She slept poorly, arose tired, and easily became fatigued. Her appendix had been removed two years previously. From that time she had suffered from dysmenorrhœa. Her husband died of consumption eleven years before. The patient was well developed but undernourished. The right apex was depressed, and over both apices there was a Pottenger sign and roughened breath sounds. The epigastric area was tender on deep palpation. She had a slight temperature.

Six days after the first immune-blood injection of 0·5 c.c. of the IXth dilution she had great pain over the gall bladder. The second injection with the same dose followed ten days later. Three days later she had a very severe pain in the area of the gall bladder, lasting three days, during which time the patient was forced to lie motionless. At this time her temperature was 100·7°. After this attack both pain in the gall bladder and the stomach-ache gradually decreased. The bowel movement became regular and the fatigue lessened. Twelve days later I injected the same dose, after which a strong angina appeared. The pharynx was greatly injected even after a week. After the fourth injection she suffered from a severe pain in the shoulder and there was a swelling of the right arm. The latter disappeared soon. but the pain in the joint remained for weeks.

So far, in this case, a series of painful reactions appeared. First, a gall-bladder pain, then a sore throat, and, finally, joint and muscle pain. After these reactions the temperature became normal.

In the following I wish to introduce a few characteristic cases. Unfortunately, all of these were under my care for only a short time, and so I cannot give an adequate account of their recovery :—

CASE 46—MRS D. F., 31 YEARS OLD

She had had pain around the gall bladder for three or four months previous to the examination. She had also the same pain eight years ago, some weeks after childbirth. The pains recurred daily, or every second day ; sometimes they ceased for as long as a week and were of six to seven hours' duration. She had suffered twelve years before from an inflammation of her right knee ; the joint was greatly swollen and was in a plaster cast for six weeks. At the same time her right elbow was painful. Sometimes she felt pain in her left knee. She had had pleurisy in her left side one and a half years before and had been feverish for three weeks. She had had a severe headache nearly every day for the last three years; at times it appeared as a marked migraine. Formerly she had often been dizzy, but recently this dizziness had seldom occurred. The summer prior to the examination she had suffered from insomnia and had been drowsy. She tired very easily and was so completely exhausted that she could hardly accomplish any work. For the last few years she had suffered from great nervousness, which had increased in severity. Her moods were very changeable; she was easily excited. Her first menstruation came at 15 and was for the first few years exceedingly painful. For some years it came every two weeks and lasted for eight days, with great loss of blood. She had two children, both of whom proved to be infected with tuberculosis. In the patient, who was well developed and well nourished, there were only roughened breathing sounds over the right apex. The regions of the stomach, gall bladder, and right kidney were tender on deep palpation.

After the first immune-blood injection (0·5 c.c. of the IXth dilution) the pain ceased. The following day, after the second injection, she was taken with a severe gall-bladder attack, which was repeated for several days. After the third injection a dyspnœa and a new gall-bladder attack appeared. The patient lost faith because of the painful reactions and stopped the treatment.

CASE 47—L. R. (MALE), 32 YEARS OLD

Ten years before the examination, severe pain lasting seven years had appeared in the region of the gall bladder. In the beginning the diagnosis was gall stones, and the patient went to Carlsbad for three years for a cure. Later on the diagnosis was changed to gastric ulcer. He was constantly under a dietetic régime and had taken much opium, morphia, belladonna, and alkalis. In the beginning he suffered such great pain that he even became unconscious and rapidly lost weight. He always had a poor appetite, was constantly constipated, and had to take all kinds of laxatives. He slept very badly and for the past few years had been taking sedatives. He was very nervous, arose tired, and was easily fatigued. He perspired so freely at night that often he had to change his shirt several times. He also perspired easily during the day. He felt cold constantly; his hands and feet were always cold. He coughed a little in the morning and raised considerable sputum. His mother suffered from shortness of breath. The patient was very poorly developed and very emaciated. The spinal column was markedly curved. Over both apices Pottenger's sign was marked, with shortened percussion sound and fine crepitations over the left clavicle. The epigastric region was tender on deep palpation.

Following the first immune-blood injection with 0·5 c.c. of the IXth dilution, a severe attack of gall-bladder pain occurred for a day and night but did not reappear. (I was able to continue the treatment only for a short time.)

The following case is especially noteworthy, because it presents a real text-book example of a severe tuberculous intoxication lasting during the whole life and affecting the patient in a most varied manner without the real cause itself, tuberculosis, being unmasked.

Case 48—Mrs L. L., 60 Years Old

As a child she had been very anæmic, weak, and thin, and did not begin to develop until the age of 14. At that time menstruation first appeared and was very painful for years afterward. Since puberty she had constantly suffered from a very severe headache, especially since her marriage at 20. Of late, near the time of the examination, she had been dizzy. Ten years before she had had pain in the gall-bladder, which lasted for a year; at the same time she had suffered profuse menorrhagia for several years. At that time she was greatly constipated, a condition which recurred later. She could not take proper nourishment because of the pain in her gall bladder, and was therefore greatly emaciated. Her recovery was slight even under several climatic and sanatorium treatments. She had suffered for about ten years from rheumatic pains in her limbs, at first especially in the shoulders. For months she had been slightly feverish. Recently she had severe stitches in her sides. She had been very nervous for years, was always exceedingly fatigued, and arose in the morning greatly exhausted unless she had had a good sleep. She often had nightmares. She frequently suffered from palpitation, and lately she had felt stitches around the heart. For the last nine weeks she had had severe gall-bladder pain, especially after eating or when she was very hungry. Sometimes she had a ravenous appetite, but she lost it after the first bite. After meals she had chills for hours but no fever. She was very constipated and the bowels never moved without an enema. Her hands and feet were often ice cold. She suffered a good deal from angina.

The patient was poorly developed, anæmic, and greatly emaciated. In the lungs nothing was present except Pottenger's sign. There was a slight scoliosis. The pylorus and gall-bladder region was painful on deep palpitation. Pulse was 96.

After the first immune-blood injection with 0·1 c.c. of the IXth dilution she was deaf for two days, had a moderate headache, and a sore throat. Three days after the second injection with 0·5 c.c. of the IXth dilution, she had a severe sore throat which lasted for a week; during this attack her temperature reached 100·9. Simultaneously she had a headache over the occiput and frontal region which lasted some time. After the third injection with the same dose, all her pains diminished. Pulse was 80. She stopped the treatment.

A symptom of concealed tuberculosis not less remarkable and comparatively frequent is *appendicular pain.* A very great number of cases of appendicitis without suppuration or gangrene are of tuberculous origin, but without the presence of tubercles. The follicular tissue of the mucosa is inclined to harbour tubercle bacilli like the lymph follicles of the pharynx. In the acute appendicitis cases of PONCET and LERICHE, in which tuberculous changes were not detectable even with a series of histological studies, two out of eight cases were proved positive by means of guinea-pig inoculation. More or less severe appendicular pains and attacks of appendicitis are very frequent, especially in young patients showing typical signs of tuberculous intoxication. Nevertheless, in the history of consumptives, we often find attacks of appendicitis and appendectomy. The familiar heredity of appendicitis is nothing other than tuberculous heredity. Dr J. BOROS, the chief surgeon of the Municipal Hospital in Szeged, Hungary, referred many cases of chronic appendicitis to me, and the immune-blood treatment made the operation unnecessary in all of these cases. Even so, it is a common experience not to find any other changes in the extirpated appendix, such as banal inflammation of the mucosa, shrinking of the lumen, and some thickening of the wall. I have had the opportunity to examine many hundreds of extirpated appendices in this country, and I can state that at least 50 per cent. could have remained harmlessly in their original places.

The frequency of the tuberculous origin of appendicitis is often proved by results obtained by immune-blood treatment, since we often find pain in the appendix as a reaction.

The same is true of *anginas*. In tuberculous children we very frequently find hypertrophy of tonsils and adenoids and the tendency of these to inflammation. DIEULAFOY examined 140 cases of hypertrophied adenoids for tuberculosis. Out of these, twenty were proved positive by means of the inoculation of guinea-pigs. After the first injections, during the immune-blood treatment, acute pharyngitis may appear as a sign of reaction, especially in the case of children. Such a case is the following :—

CASE 49—B. M. (GIRL), 7 YEARS OLD

She had a poor appetite, was nervous, and easily tired. Lately she had slept restlessly and felt tired in the mornings. She had a slight pain in the ankles. I found a slight curvature of the spine and flat feet in the child, who was poorly developed and undernourished. Hands were cold. Pulse 100.

Six days after the second immune-blood injection the child showed a moderate angina, with a rise of temperature to 99·6. The mucosa of the pharynx was swollen and injected for more than a week.

It is not a rare phenomenon in the symptomatology of concealed tuberculosis to find a *pain in the kidneys* which sometimes manifests itself in the form of severe kidney attacks which may simulate a renal colic. There appears to be some connection between tuberculous intoxication and the development of calculi in the kidney as well as in the gall bladder. With respect to these, further investigations are necessary. According to Poncet and Leriche, tuberculosis has also an important rôle in the ætiology of chronic interstitial nephritis. During the specific treatment it not infrequently occurs that among the symptoms of reaction we find pain in the kidney on one or both sides, especially when we find kidney pain in the history. Urgency of urination also is connected often with this pain.

CASE 50—M. P. (MALE), 35 YEARS OLD

A year prior to the examination he had often been dizzy. He sometimes felt palpitation. His appetite was changeable. He was frequently constipated and often had pain in his limbs. He had had a left side renal colic six months before, lasting three hours with urgency of urination. The patient was moderately developed and nourished. Over both apices there was Pottenger's sign. The right supraclavicular fossa was sunken with shortened percussion sound.

After the second immune-blood injection he developed pain in both kidneys, which appeared once more with urgency of urination after the third and fourth injections. He also felt some pain over the appendix. After the fifth injection the renal pain as well as the irritability of the bladder ceased. He had a good appetite, and the bowel movements became regular.

The *leucorrhœa* of women, which often begins with childhood, is usually nothing more than a local condition of attenuated tuberculous infection. It is often an obstinate affection and not infrequently withstands every kind of local treatment, but is easily cured by tuberculin or immune-blood treatment.

As an example, I introduce the following case :—

CASE 51—Z. F., 11 YEARS OLD

The patient felt weak and became pale for a time ; had headaches and dizziness. She was very tired and was sleepy in the daytime. She perspired freely. Sometimes she felt palpitation. Since the beginning of these symptoms she had a constant leucorrhœa. The father had consumption for a year. The child was poorly developed, undernourished, and pale. Examination of the chest was negative. Pulse 120. Weight 58 lbs.

At the beginning of immune-blood treatment the leucorrhœa increased but soon decreased, and, after two months of treatment, it ceased. She gained 5·5 lbs. in weight, was not tired any more, and the other symptoms also disappeared.

The following case is from my present practice :—

CASE 52—MRS R. E., 38 YEARS OLD

For ten years she suffered from leucorrhœa, which began in a mild form and gradually became worse. She was therefore repeatedly under treatment. The flow diminished for a time, then increased, but never ceased. Her first menstruation began at the age of 13 and was regular in the beginning. Later on it came every three weeks, lasting for a week, and always weakened her. She had had palpitation for years. She was nervous and easily tired. She lost weight a year ago ; later she regained it. She had suffered much from headaches and dizziness two months ago. At that time her leucorrhœa increased in severity. Her husband and both children (8 and 10 years old) were under my treatment. The patient was well developed and moderately nourished. The right shoulder drooped slightly. Over the right apex posterior there was slightly higher, prolonged expiration. Pulse was 84. Weight 130·5 lbs.

Course of Treatment

1926—Dec. 8. First injection, 0·5 c.c. of IXth dilution of immune blood.

Dec. 20. 0·5 c.c. of VIIIth dilution.

Dec. 29. Her menstruation appeared regularly on time, with a shorter duration and did not weaken her. Injection, 0·5 c.c. of VIIth dilution.

1927—Jan. 5. Leucorrhœa was less. Had less palpitation and less nervousness. Weight 132 lbs. Injection, 0·5 c.c. of VIth dilution.

Jan. 12. Traces of leucorrhœa. Injection, 0·5 c.c. of Vth dilution.

Jan. 19. Last menstruation lasted only three days, without any weakness. She had no more palpitation and nervousness. She was able to see better. (Before the treatment her sight was not clear while reading.) Pulse 76. Weight 136·5 lbs. Injection, 0·5 c.c. of Vth dilution.

Jan. 26. She felt perfectly well. The leucorrhœa ceased. Injection, 0·5 c.c. of IVth dilution.

Feb. 2. *Pulse* 96. Weight 137·5 lbs. Injection, 0·5 c.c. of IIIrd dilution.

Feb. 9. There were fatigue and palpitation, lasting for a few days after the last injection. She menstruated earlier and had a pain in the uterus before the bleeding which she had never felt before. Also slight leucorrhœa appeared. *Pulse* 92. Weight 138·5 lbs. *Injection,* 0·5 *c.c. of IXth dilution.*

Feb. 16. She had felt well since the last injection, except for a slight fatigue. She had no palpitation. Pulse 74. Weight 139 lbs. Injection, 0·5 c.c. of IXth dilution.

Feb. 23. She felt perfectly well. Pulse 74. Weight 140 lbs.

1927—Apr. 6 (end of treatment). She felt perfectly well all the time without any leucorrhœa. Weight 144·5 lbs. In four months of treatment she gained 14 lbs. without any change in her daily housekeeping.

We can see that the patient had a reaction in the endometrium owing to the larger dose of immune blood (IIIrd dilution). The beginning of reaction was already heralded by the rising of the pulse (96) before the injection of IIIrd dilution. After the injection of the first dose (IXth dilution) all the symptoms which had been provoked soon disappeared.

The tuberculous intoxication often causes *chronic catarrh of the nose.* The patients either have an obstinate rhinitis with a permanent discharge, or they are very susceptible to colds which usually last for a long time. Sometimes this catarrh resembles hay fever. Following the immune-blood treatment, not only does the chronic cold disappear, but the patient loses his susceptibility to it.

In the chapter on Rheumatism it has already been shown that adhesions of the ossicles are the cause of many cases of deafness. *Bad hearing* develops not infrequently in the course of concealed tuberculosis. These cases improve after immune-blood treatment and may even be cured. The defects in hearing appear also under specific treatment as a sign of reaction.

I consider it worth while to introduce the following case :—

CASE 53—S. G., PRINTER, 30 YEARS OLD

He had increasing stitches in his side for half a year. He always perspired very freely, even in winter. Earlier he had had pains in the legs. A few weeks ago he had a pain in the gall bladder and had been troubled by constipation. He arose tired in the morning and slept badly. He was irascible. One sister died of consumption. The patient was moderately developed but emaciated. Over the apices a Pottenger's symptom was present. The right shoulder drooped slightly. There was a shorter percussion sound over the right apex.

First immune-blood injection was given 19th April 1921, 0·5 c.c. of IXth dilution. He slept better after it. Second injection, 29th April, 0·5 c.c. of VIIIth dilution. Thereafter he had a feeling of pressure and ringing in the left ear. He began to hear with difficulty. Third injection (8th May), 0·2 c.c. of VIIth dilution. The poor hearing was transferred from the left to the right ear and, after a week, ceased. At the same time both legs became painful and were so fatigued that he could not work. After the fourth injection (17th May), with 0·8 c.c. of VIIth dilution, he felt fatigue in his right arm and for half a day in his hand also. After these reactions the patient felt perfectly well. His former excessive sweating also ceased. His hearing returned to normal.

We may often observe *changes in the eye* as symptoms of tuberculous intoxications. The phlyctænas are pretty well known. About the so-called rheumatic eye diseases we have spoken in the chapter on Rheumatism. I want to mention here the study of a German ophthalmologist, George Hirsch (32), who established a causal connection between concealed tuberculosis and myopia by means of tuberculin treatment. In my opinion this trouble of refraction may also be provoked by endocrine influence, a fact which is yet to be proved by further researches.

Often enough, *bleedings* accompany the concealed form of tuberculosis. Repeated epistaxis, especially in childhood and during puberty, are always suggestive of tuberculosis. Such bleeding may sometimes be very great without any demonstrable local cause.

Case 54—D. J. (Male), 23 Years Old

He suffered from epistaxis for two years; and had a very severe bleeding the day of my consultation. He had spat blood five years previously. He had never coughed. The young man was well developed and moderately nourished. The right apex was slightly sunken with shortened percussion sounds. Diagnostic subcutaneous injection with

0·10 mg. ATO and PTO gave a strong local reaction, especially PTO.

Treatment was begun with TBV, later on with immune blood. Under treatment he had one more attack of epistaxis, which did not recur during many years of observation. The patient gained much in weight after the treatment.

In another chapter I have spoken of the long and profuse menstrual bleeding, and I wish to mention here the bleedings which occur between the menstrual periods.

Especially important is the *hæmoptysis* following concealed tuberculosis, when we cannot find any focus in the lung, or, at least, we cannot suspect a destructive lesion. It happens with females that the hæmoptysis usually appears during menstruation, or, in case of amenorrhœa, as "vicarious" bleeding. It seems that these bleedings have a connection with some endocrine disturbances. All of these bleedings are stopped immediately through one X-ray irradiation of the spleen for ten to twelve minutes. The X-ray acts without doubt by affecting the endocrine function.

I wish to introduce here one of my several cases, although in this case the long enduring concealed form had already manifested itself in consumption.

CASE 55—MRS M. J., 29 YEARS OLD

Until her fifteenth year she had been a well-nourished, strong girl. Then she began to have epistaxis, which lasted until her twentieth year. They recurred daily, sometimes three times, and weakened her very much. She had her first menstruation at 16 years and it was always profuse. She had been married for three years; since then, every fortnight she had her menstrual bleeding, which lasted so long that she was hardly ever free from bleeding. She also had leucorrhœa. She had spat blood constantly for four years, the last time three days before the examination. Three months previously she had suffered a very copious hæmoptysis. Other symptoms were these: She had been severely constipated for four years. She had always had severe headaches and was often dizzy. She was exceedingly nervous. She had day and night sweats. She had pain in the arms and hands and for a year in her sacrum, and because of this she could walk only with a cane. She had no appetite and constantly decreased in weight. She coughed much and expectorated. She was feverish; she had had chills for the past eight days. One sister died of consumption three years before; she had nursed her.

The patient was badly developed, very poorly nourished, and greatly emaciated. Over the apices a strong Pottenger's sign was present. Over the left apex there was a relative dullness, high pitched breathing, and few, slight, dry râles posteriorly. Pulse 120. Weight 79·5 lbs. X-ray finding: Darkness over the left upper lobe. Sputum: Many leuco- and lymphocytes; few Koch bacilli.

At the first examination (2nd May 1921) I performed an X-ray irradiation of the spleen and begun daily inunctions with Vth dilution of immune blood. From that time she had no more hæmoptysis during the two months of observation. After five days she already had a better appetite; her headaches, vertigo, and chills ceased. Her temperature had reached 100 daily; three days after the first immune-blood injection (0·5 c.c. of IXth dilution) it rose to 101·8° and gradually became subfebrile in ten days. Second injection with the same dose, 18th May. She then had an excellent appetite and gained 4·5 lbs. She had regular bowel movements, but had a rectal sore, pain in the bowels, and the region of her appendix was painful on pressure. After the second injection she had a severe diarrhœa lasting for three days; after that time she had no more pain in the bowels. (Reaction in the bowels.) Her leucorrhœa increased. She felt stitches in the chest. Her sacral pain was augmented to such a degree that she could not sleep because of it. Third injection, 27th May, 0·4 c.c. of VIIIth dilution. I increased the doses in spite of reaction because I wanted to provoke further reactions. On the fourth day the temperature was 102°, later 103·8°, thereafter once more subfebrile.

After these reactions she had her first menstruation, which came after five weeks' cessation (for three previous years she had had it every fortnight), this time with a great cramp-like pain (reaction in the ovary). She had never before had a painful menstruation. Now, 6th June, I injected the Xth and, nine days later, the IXth dilution. Her appetite was consistently excellent, the leucorrhœa practically disappeared, her sacral pain diminished, and she had regular bowel movements daily. Before the treatment she was unable to work; under it she could work all day. During the six weeks of treatment the patient gained 6½ lbs. in weight. There was no more hæmoptysis. Since I was leaving the town I could not treat and observe the patient longer than two months.

This case is important from many points of view. Above all, we see that in the beginning there was an exhausting bleeding from the nose lasting for years; later on, great meno- and metrorrhagia, and, finally, hæmoptysis overcame the patient. The bleeding from the lung in that case is probably of toxic origin, as well as are the bleedings from the nose and the uterus, and seems to be connected with endocrinal disturbances. The second important point is that, following the immune-blood injections, a whole series of organic reactions developed, namely, of the pleura (stitches in the chest), in the sacrum (increasing of pain), of the endometrium (leucorrhœa), of the ovaries (dysmenorrhœa), and of the bowels (diarrhœa, pain in the bowels). Finally, it is worth while to note that all these excellent local (lytical) and universal (antitoxical) reactions were provoked by the minimum doses, the strongest not being higher than the dilution No. VIII., *i.e.*, a hundred millionfold dilution of the original immune blood.

CHAPTER XII

PROGNOSIS

UNTIL the present time, the prognosis of tuberculosis was nothing more than groping in the dark. The chief considerations were the activity and spreading of the process, the complication, the strength of the patient, and his financial standing. However, prognosis on this basis is very unreliable and lacking in all true conviction. The only proper rule for establishing a correct prognosis is the consideration of the state of immunity.

Certainly we possess exact experimental and laboratory tests for determining the immunity, *e.g.*, the opsonic index, the method of precipitation, the examination of allergy, the sputum test, and so on. By summarising the results of some or all of these examinations, we gain a more or less suitable basis for establishing a prognosis. However, this is not a practical method for the physician, and it certainly will not be accepted by him, especially as the state of immunity can be determined from the patient himself if, in addition to his present state, we note the intoxication symptoms.

From what has been said in the first chapter, it follows that the symptoms of intoxication truly form the spontaneous reaction of the hypersensitive organism against the poisoning. The more pronounced these symptoms are, the less developed the manifest signs of tuberculosis, because of the immunity present. Therefore, the more the intoxication symptoms prevail, and the more they precede or accompany the manifestation of tuberculosis, the more we can rely upon its benignity and healing. And vice versa; the phthisis appearing without symptoms of intoxication is, in the majority of cases, malignant, with an unfavourable prognosis.

It is very important, however, to estimate properly the various symptoms. For instance, fever may be the sign of reaction of the organism and so of favourable prognosis, as well as of the progress of the disease and secondary (septic) infection. In the former case the patient, conscious of a rise of temperature of half a degree, feels sick because of a whole series of accompanying symptoms such as faintness, headache, muscle-aches, vasomotor disturbances, etc.; whereas, in case of unfavourable prognosis, where the reaction of the organism is absent, it often occurs that the patient does not even feel feverish and he can still work well, often with high temperature. Even so, a fast pulse may be a sign of reaction as well as a sign of progress, *i.e.*, an unfavourable prognosis. In the former case it is always connected with the feeling of palpitation and other disagreeable subjective sensations; but in the latter case the patient does not complain of palpitation, even with a pulse of 140 to 160. Now and then emaciation, amenorrhœa, etc., may have a different meaning.

To determine to what degree the presence of symptoms of intoxication can serve as a basis for prognosis, I tabulated the number of cases with menstrual disturbances (28). Out of 712 cases of tuberculosis, the menstruations were regular and painless in 213 cases (30 per cent.). It was striking how many of these had the most unfavourable prognosis, several of the patients dying in a few years. Therefore I grouped the cases of bad prognosis separately. Out of 712 cases, the prognosis was unfavourable in 119. Out of these, 75 women (63 per cent.) had regular and painless menstruation. On the other hand, out of 593 favourable cases, only 138 (23 per cent.) of the women had regular and painless menstruation.

The history and present state of sickness determine not only the prognosis, but also the possibilities for creating or arousing in a given case an absent or very rudimentary immunity. Especially important here is the estimation of disposition already discussed. Often a simple experiment is sufficient for determining the possibility of provoking immunity and, therefore, the possibility of healing. Especially valuable for this purpose is the percutaneous application of immune blood in medium dilutions. I give the patient the Vth or VIth dilution, with the direction to rub five or six drops into the skin every day until the skin is perfectly dry. I ask the patient to take his temperature systematically, and note pulse and weight. Then I examine him once more after a few weeks. When the emaciation has stopped or the patient has even gained, and when pulse and temperature show improvement, then the uncertainty of prognosis may be changed to the expectation of improvement or healing. On the contrary, further emaciation proves the impossibility of artificially restoring the absent immunity, and so the suspected bad prognosis becomes certain.

CASE OF FAVOURABLE PROGNOSIS

Case 56—G. Z. (Female), 21 Years Old

The patient had coughed for three months. She had had constipation for one year and perspiration during the night for one month. Her appetite was changeable. From time to time she suffered headache, vertigo, and nausea. There was violent pain at menstruation during three to four days, with abundant bleeding. Both parents were chronically tuberculous. One sister died of consumption.

The patient was moderately developed and nourished. There were some rough, protracted, expiratory sounds in the left apex.

I recommended specific treatment, but she went to the seashore instead. The troubles disappeared there and she felt well for a year. After this time all symptoms, especially nausea and vomiting, returned and even increased. I saw the patient two years after the first examination. At this time she had also developed nervousness, palpitation, entire loss of appetite, and pronounced constipation. She coughed, and because of this her sleep was disturbed. The patient had decreased in weight, was extraordinarily pale, and permanently subfebrile. The tuberculosis showed some progress in the left apex.

I made, however, an entirely favourable prognosis, considering the definite symptoms of intoxication which had existed for a long time with relatively slight local alteration. I planned a definite cure by specific treatment. The patient had, however, an antipathy to injections, so I began the treatment with inunctions of immune blood, performed every day by the patient herself. After five weeks her condition improved so much that the patient desired the injections. In these five weeks she increased 5 lbs. in weight, the cough disappeared almost entirely, stool became normal, and all other symptoms of intoxication were decreased. Injections were given for three months. The temperature became normal, the weight increased 23 lbs., and even long walking did not tire her. The dysmenorrhœa also disappeared.

As a precautionary measure I repeated the treatment after some months. I had the opportunity to observe her during seven years. She was always well and in blooming condition.

CASE OF UNFAVOURABLE PROGNOSIS

Case 57—G. L. (Male), 27 Years Old

The patient coughed two months; he was subfebrile for three weeks, and during this time he twice had some bloody discharge. The patient felt well and had no symptoms of intoxication at all save that, for a couple of weeks, he had night sweats which, however, disappeared. He did not feel tired. Although he had a good appetite he had lost 25 lbs. in the last three months. His father suffered from chronic alcoholism; the patient also drank wine freely. There was no tuberculosis in the family. The patient was tall, moderately developed, thin, and pale. In both apices, shortened percussion sound and sharp breathing were noticeable. Temperature reached 99·5 every day. Weight 133 lbs. Pulse 120.

Although this case was in an incipient stage, I made a most unfavourable prognosis from the above facts, and it was only at the instance of his relatives that I began the immune-blood treatment. In spite of this and in spite of the patient's remaining in bed, he lost 1 lb. in one month. Then he went to one of the best climatic sanatoriums (San Remo, Italy), from which he returned with further loss of weight and with incipient tuberculosis of the larynx. In spite of repeated climatic and sanatorium treatment he died one and a half years after my first examination.

CHAPTER XIII

THE IMMUNE-BLOOD TREATMENT

It was in 1908 that C. Spengler (33) published his discovery of cellular immunity. According to this discovery, the immune bodies of tuberculosis do not generate in the serum but in the red blood cells, where they accumulate in immense quantities confined to the hæmoglobin. The red blood cells supply the serum with the immune substances necessary for the protection of the body against infection. By injection of antigen, *i.e.*, tuberculin, a certain quantity of immune substances will be freed through hæmolysis. The red blood cells soon restore the loss of these and even over-compensate it. Therefore the immunity is not a humoral, but a cellular or cellulo-humoral process. He found the same to be true of the pyogenic organism, and also of leprosy and syphilis.

Although it was a discovery of such vast importance, the medical world paid no attention to it. Indeed, it is remarkable how often the simplest scientific truth has had to endure antagonism and prejudice ; among the many I mention only those of Harvey and of Semmelweiss. The discovery of circulation of the blood aroused such violent antagonism in the medical world that Harvey lost the confidence even of his patients. Semmelweiss, pioneer in aseptic surgery, was a most pathetic figure in his own day because of his persecution by the authorities, although a later medical generation paid him tribute with an impressive statue.

According to his theory of immunity, C. Spengler produces the immune blood as follows :—

He cultivates on his elective culture media separately the bacillus of type human and of type humano-bovine (*i.e.*, *Bacillus humano-longus*, Spengler) from the sputum of severe cases of consumption. From these he produces a symbiotic culture. If from this most virulent culture he injects a sufficient quantity subcutaneously into a rabbit, the animal succumbs in a week because of an acute intoxication. But if he injects the same dose intramuscularly, the defensive action of the muscle tissue manifests itself and causes a milder intoxication. The animal will be feverish for three months and then it will recover. Meanwhile, it acquires an absolute immunity and can absorb subcutaneously the lethal dose without any bad consequences. Spengler hæmolyses the washed red blood cells of the animal immunised in this way and frees the substance from albumin. The concentrated immune substance, slightly soured with lactic acid and diluted to a certain degree, is the pure immune blood. Its immune substances, especially lysins and antitoxins, act as *dissociated specific electrons*. Only on the basis of the ion-theory can we understand this fact, without example in biology, that with a 10,000 millionfolds dilution (*i.e.*, dilution No. X.) of this liquid we can obtain a pronounced lytical reaction or stop the intoxication. The reader may find several convincing examples among the above cases. For further details I refer him to the original works of SPENGLER (34). In English, W. H. FEARIS (35) wrote a summarised study of immune blood.

The immune blood, therefore, is not a toxin like the tuberculins ; even in its original concentrated form it has no effect on persons free from tuberculosis, and may often be ineffective also for patients with severe progressive consumption or with inactive tuberculosis. Why ? Because none of these cases has a sensitivity which would respond through reaction. On the other hand, in cases of hypersensitivity, *i.e.*, in patients with syndromes of intoxication, one injection of the IXth or Xth dilution is often sufficient to occasion high fever and other universal and focal symptoms such as sleeplessness, severe pains, etc., because of its antitoxic action. Symptoms, already stopped in the course of injections, sometimes reappear following a larger dose ; or pains and other symptoms that have not appeared for a long time—perhaps for years—will once more be produced through a stronger lytical effect (liberation and absorption of endotoxins). All these symptoms provoked by larger doses can be controlled by neutralising the toxins with one injection of a minimal dose of immune blood. That is the reason why, although ROEPKE claimed that immune blood is quite ineffective, other physicians rejected it because they found it too effective, even dangerous. The failure lay, therefore, not in the substance but in an incorrect use of it.

In the following few cases I wish to introduce also in temperature charts the lytic and antitoxic effect of the smallest doses of immune blood.

(*a*) ANTITOXIC EFFECT

CASE 58—K. T. (BOY), 6 YEARS OLD

Two years prior to the examination he had suffered from whooping cough and was feverish for a long time. For the past six weeks he had been in bed with continued fever, which rose to 104°. The patient's appetite was poor and he was ill-humoured.

The child was fairly well developed, poorly nourished, slightly emaciated, and very pale. Over the chest there was no physical finding of disease. The X-ray showed a heavy shadow in the hilus. Pulse was 112. Weight 37 lbs.

First injection (15th February), 0·5 c.c. of dilution No. IX. The fever, which on the day before was 105·1°, was 103° for five days and fell to 99° on the sixth day. The second injection (0·5 c.c. of No. VIII.) was given after ten days; the maximum temperature reached was 99°. After the third injection (nine days later, 0·5 c.c. of No. VII.) the temperature remained normal. The child left the bed after the second injection, had a very good appetite, and was good-humoured. The pulse was 92. He gained 4·5 lbs. in the first three weeks.

He contracted measles in the early part of the April of the same year. The deleterious effect of measles is well known, because it decreases tuberculosis immunity. In this case, after recovery from the intercurrent disease, he had a loss of appetite; pulse was 120; loss of weight was 1·5 lbs.; and slight fever, lasting for a few weeks, was noticed. All these symptoms disappeared after a second course of immune-blood treatment. (See Chart No. 1.)

(*b*) LYTICAL EFFECT

Case 59—L. U. (Male). 39 Years Old

The patient had coughed for a year, and during this time had three severe hæmorrhages and nearly bled to death. He spat blood every day for two weeks and coughed so hard that he could not sleep. He produced much sputum; had vomiting and headache; sometimes dizziness. He sweated in the night; got up very tired and could not work. He had precordial pains and headaches; sometimes pain in the extremities. The patient was well developed and fairly well nourished. There were old scars of healed lymph node tuberculosis on the neck. Over the left apex there was a shortened percussion sound and harsh breathing was noticeable. The pulse was 120. He had no fever. Weight 144 lbs. In the sputum there were many lymphocytes. Tubercle bacilli negative.

On 23rd February the first injection of 0·5 c.c. of dilution No. IX. was given. The patient became feverish after four days (100·9°). On the next day he felt ill and had chills, and temperature 102·7°, which rose, in two days, to 104·2°. He had more sputum and coughed more. After two days' remission the temperature rose once more to 102·7°. The patient expectorated excessively. The dullness of the left apex showed an increase in intensity and extent. After that the fever decreased slowly, and twenty-one days after the injection it reached 98·6°. A second injection of the same dose was given. There followed three days of normal temperature, then a slight reaction to 98·8°. A third injection of 0·5 c.c. of dilution No. VIII. was given nine days later. After three days there was a slight reaction to 99°, which was followed by a constantly normal temperature. By 26th March the patient no longer coughed, and there was practically no sputum. He ceased to feel tired in spite of hard work. On 14th April I noted a gain of 8 lbs.; the patient had no sputum at all; no cough. (See Chart No. 2.)

In this case we see a very marked reaction, as shown by the high fever and the local symptoms; a more decided dullness, increased sputum, and much cough (exudative inflammation around the focus). We could have avoided this by giving the immune blood percutaneously for a week before the injection and by beginning the injections with the dilution No. X. instead of No. IX. But the stronger reaction had a very good effect, and the patient remained without any recurrence of the symptoms for two years while he was under my observation. He gained much in weight and worked steadily.

(c) ANTITOXIC AND LYTIC EFFECT

Case 60—B. A. (Boy), 2½ Years Old

He had had diphtheria five and a half months before the examination. After that he was sickly; coughed continually; was constantly feverish, and had no appetite. He had nightmares and cried out in the night. He was constipated. His abdomen began to enlarge. The child was well developed, fairly well nourished, but exceedingly pale. The enlarged abdomen was sensitive to the touch; and there was dullness over the lower portion. At the back over the lungs, disseminated, slight, dry râles were heard. Pulse 124.

A day before the first injection (0·5 c.c. of dilution No. IX.) the fever was 103·5°; the day of the injection, 102·2°; the following day, 102·6°. From that time on the temperature fell from day to day, and from the sixth day remained under 98·6° for four days. The day after the second injection (0·5 c.c. of dilution No. VIII.) the temperature was 101° and remained between 100° and 101°. Nine days later the third injection of the same dose was given. The fever rose to 101·6°, then fell to 100°, and, after again rising to 101·6°, it fell to 98·6° and remained constantly normal. (See Chart No. 3.)

The child coughed so much harder after the first injection that he could not sleep for several nights; then the cough lessened and the appetite began to improve. A week after the first injection his bowel movements were normal. After the second injection the abdomen grew larger day by day and one could detect fluctuation. He had pain at evacuation. He again coughed much after the second and third injection. After the fourth injection of the same dose the cough diminished greatly and finally disappeared. The abdomen began to become smaller. After the fifth injection (0·5 c.c. of No. VII.) the child was apparently quite healthy and very lively. He had a very good appetite, gained strikingly in weight, and his face assumed the colour of health. The abdomen was still slightly enlarged but without fluctuation, and there was no dullness. Not long after, the abdominal enlargement disappeared entirely and the râles over the lungs also disappeared. The child remained constantly in good health. One year later he again received the injections to avoid recurrence. It is important to note that the patient was the child of poor parents, the consumptive father living in one room with his wife and four children.

I once had an opportunity to observe the direct lytic effect of the immune blood upon the tuberculous foci in one of my autopsy cases. It was that of a 9 year old girl with advanced tuberculosis of the lungs and bowels. When the child came under my care she was very much emaciated, weakened, and highly feverish. After the first injection of VIIIth dilution the fever rose. After the second injection the fever rose once more, still higher, and at the height of the reaction the child died. At the autopsy I found greatly extended ulcerative and cavernous phthisis in both lungs, a great many ulcers of the bowels, and tuberculous enlargement of the peribronchial and mesenteric lymph nodes. Around all tuberculous processes, especially of the more recent foci, around all ulcers of the bowels, and around all tuberculous lymph nodes, there was an *extensive hyperæmia* present. I never found such a hyperæmia around tubercular foci, and without doubt we have to attribute it to the local effect of the endotoxin liberated by the lytic effect of immune blood.

We may observe the lytic effect as well as the increase of immunity in the sputum also. In the beginning it is without reaction symptoms and contains many uninjured bacilli. In the course of lytic reactions it shows more and more lymphocytes and leucocytes; we find phagocytosis and the capsules of the bacilli undergo disintegration. They do not stain well with Ziehl and show granules. With the increase in the number of cellular elements and by phagocytosis, the bacilli finally disappear.

The immunising action of the immune blood is passive as well as active. It acts passively because of its antitoxin content, and it is this that makes it exceedingly valuable for treating hypersensitive patients, in whom the intoxication symptoms particularly prevail. The active immunising power lies in its absorption of endotoxin from the dissolved bacilli, produced by the lysin content. Reactions are provoked in the same way. After nearly every reaction we can note objective and subjective improvement.

After the injection we often find in afebrile or subfebrile cases a considerable fall in temperature; not infrequently it becomes subnormal. The lytic rise of temperature appears on the fourth to the seventh day, less frequently on the eighth or ninth day, sometimes in the form of fever, which gradually declines in two, three, or four days. Sometimes one or two days after the first reactionary rise of temperature, a second, slighter rise becomes visible for one to three days. It is characteristic of the lytic fever that afterwards the temperature becomes lower and more stable than before the injection. The cessation of the reaction should always be awaited before the new injection is given. Sometimes, especially after the first injection, we see only an antitoxic effect, namely, the cessation or improvement of fever, rapid pulse, and other toxic symptoms.

As the treatment by immune blood is carried out with great dilutions, it is usual to make the dilutions for ourselves with 0·5 per cent. carbol water (0·5 gm. carbol in 100 c.c. distilled water) as follows :—

1 c.c. orig. immune blood + 9 c.c. carbol water = 10 c.c. of dil. No. I.
1 c.c. dil. No. I. + 9 c.c. ,, = 10 c.c. ,, No. II.
1 c.c. ,, No. II. + 9 c.c. ,, = 10 c.c. ,, No. III.

and so on.

Therefore :

Dilution No. I. is 10 times diluted immune blood.
,, No. II. is 100 ,, ,, ,,
,, No. III. is 1,000 ,, ,, ,,

and so on.

The dilution No. X. is equal to 10.000 million times dilution.

With regard to the fact that we use for the most part large dilutions and we only rarely reach the dilution No. I., and we seldom need the original immune blood. 1 c.c. of the original is usually sufficient for the treatment of at least thirty patients for half a year. The dilutions do not deteriorate and remain effective for many months. The 1 c.c. tuberculin syringe of glass, calibrated for ten parts, is the most practical for the subcutaneous injections.

The treatment begins with 0·3 to 0·5 c.c. of the dilution Nos. X. or IX. As reactions can appear any time within eight or ten days, we wait at least twelve days before giving the second injection. In case of reaction, we repeat the same dose after all signs of reaction have passed. In case of a very slight or no reaction, we raise the dose five to ten times.

At the beginning of the treatment the following injections may be given every seven to nine days, with slight increases. For example :—

1.	Injection,	0·5 c.c.	of No.	X.
2.	,,	0·8 ,,	No.	X.
3.	,,	0·3 ,,	No.	IX.
4.	,,	0·8 ,,	No.	IX.
5.	,,	0·5 ,,	No.	VIII.
6.	,,	0·5 ,,	No.	VII., etc.

It is advantageous to increase the doses, but we need not force them. If toxic symptoms reappear from having given larger doses, it is better to go back to the doses given at the beginning. After treatment for several months, if we get suitable objective and subjective amelioration, or if all symptoms have disappeared, we can stop the injections and leave the work of reparation for the organism to finish.

In case the symptoms of intoxication reappear after finishing the treatment, as they sometimes do after four to six months, or even later, we may take this as a sign of an impending relapse and the treatment should then be repeated. We usually require periodic treatment, as in syphilis, for a final cure.

Naturally, all conditions which help to raise immunity, *i.e.*, rest, hygienic and dietetic treatment, are favourable in connection with the specific treatment. On the other hand, we are able to cure many cases without the patients leaving their occupations or making any change in their unfavourable conditions. It is advantageous to give some iodine internally, which influences the local process favourably and helps to raise the immunity. I usually give tincture of iodine, once a day, in doses of 5 to 10 drops or more, well mixed in a large glass of milk.

In cases of great hypersensitivity, besides the injections we can also apply the immune blood *percutaneously*. The patient himself should rub 4 or 5 drops into the skin of the forearms with his palm every day until it is quite dry. The first dose for rubbing in is the Nos. VIII. or VII., and we can gradually raise the dose every three or four weeks until arriving at dilution Nos. IV. or III.

I also apply the rubbing-in process between injections. By this method it is usually enough if the patients appear at the doctor's office once in two or three weeks; therefore this is the most suitable method for mass treatment in dispensaries. It is important to keep an accurate history of every case and also a temperature chart if possible.[1]

---

[1] The percutaneous treatment originates from SPENGLER, who already in 1907 applied it with tuberculins to overcome great hypersensitivity.

In cases where only subjective and functional symptoms are present, one or a very few injections or daily inunctions for a few weeks may often be sufficient. After a successful neutralising of the toxins, the specific fight of the organism will be localised exclusively in the tuberculous focus or foci ; the organism does not take cognisance of the fight, and so nothing disturbs the subjective feeling of the patient. In early cases even a short treatment may be sufficient for a final healing to take place in the tuberculous focus or foci.

Immune-blood treatment in childhood is especially important. Children are better subjects for specific treatment, because the granulation tissue is still fresh and less complicated by retrogressive changes and secondary infections. Moreover, they can be immunised more easily, and therefore they are absolutely curable by specific treatment. The neglect of this is as erroneous as the neglect of antisyphilitic treatment of an incipient case of syphilis.

With babies and young children, injections are not necessary, and good results may be obtained by the use of medium dilutions of immune blood, administered percutaneously, or internally *per os*. The older the infection and the more organs affected, the longer and the more frequently the treatment must be applied, just as it is in the case of syphilis.

Later on he applied also his immune blood percutaneously before beginning the injections or between the injections in order to lessen reactions. I was the first who applied and suggested the rubbing-in method for mass treatment, and published it in my first book in 1909. In 1914, by means of this method, Professor PETRUSCHKY, in Danzig, succeeded in freeing a Prussian village from tuberculosis with tuberculin. Since then the rubbing-in method is erroneously called Petruschky's method.

CHAPTER XIV

CONCLUSIONS

THE recognition of latent and disguised tuberculosis is of the greatest practical importance.

1. Latent tuberculosis provokes in the hypersensitised system a constant reaction of the endocrine glands that finally leads to chronic endocrinal disturbances. Acting through subsequent generations, this will create physical and psychic defects. Chronic tuberculous intoxication markedly increases defects which are caused by other continuous intoxications, especially alcohol, and probably nicotine also; but even when those are lacking, it will open the gates of degeneration even in families previously healthy. Mental and nervous disturbances, incurable or barely curable; chronic physical deformities, in general, a physical, mental, and psychic inferiority, will follow in its wake. In this way tuberculosis is the source of great social and racial damages perhaps to as great a degree as its manifest form, consumption.

2. We are not without weapons against this danger. It was ascertained that the tuberculous infection takes place in childhood. Partly at that early age, more so during and after puberty, the symptom complexes described in the previous pages offer themselves, so to speak, for treatment even before the tuberculosis appears in its manifest form. If we delay the treatment until this latter stage, our mistake is as great as if we should begin to treat syphilis only when gummata, aneurism, or tabes appear. And this inference is not altered by the fact that, with few exceptions, most physicians hold a contrary opinion. This dogma is based on a second dogma, which is most prevalent among American physicians, that tuberculosis has no specific remedy. The author wishes to state definitely in opposition to this that the tuberculins, and especially Spengler's immune blood,

properly administered, are at least remedies as specific as salvarsan is for syphilis, particularly in those forms of tuberculosis which comprise the substance of this book. To doubt the value of these agents because they will not suffice against very advanced consumption and other incurable forms, would be the same as to doubt the value of salvarsan because it will not cure advanced forms of syphilis such as aneurism, tabes, paresis.

3. In recognising and curing latent and disguised tuberculosis, we not only relieve thousands of those suffering, but at the same time provide the best prophylaxis against consumption. Immune-blood treatment also makes mass treatment possible and, since it does not take the patient away from his daily work, is consequently of great economic importance.

REFERENCES

1. Pizzini : *Zeitschrift für klin. Med.*, 1892, No. 21.
2. E. Rosenkrantz : “ Reaction de Bordet-Gengou dans a tuberculose chez les nouveaunés,” *Bull. de la Soc. de Biologie*, 1911.
3. A. Poncet et R. Leriche : “ La tuberculouse inflammatoire.” Paris : O. Doin, 1912.
4. F. W. Mott (London) and M. Prados y Suoh (Madrid) : “ Pathological Studies in Dementia Præcox,” *N.Y. Med. Journal*, 1922, Sept.
5. Laura Foster and S. Edin : “ Histological Examination on Ovaries in Mental Disease,” *Proceedings of the Royal Society of Medicine*, London, 1917. Part III.
6. G. Liebermeister : “ Tuberkulose.” Berlin : Jul. Spinger, 1921.
7. Low : *Allgemeine Zeitschrift für Psychiatrie.* Band 72, 1906. S. 413.
8. C. Kramer : “ Etiologie und specifische Therapie der Tuberkulose.” F. Enke : Stuttgart, 1914.
9. Leo M. Davidoff : *Endocrinology*, Vol. X., 1926, No. 5.
10. Moritz Fishberg : “ Tuberculosis among the Jews.” *Med. Record*, 1908, Dec.
11. George D. Head : “ Concealed Tuberculosis, or the Tired Sickness.” Philadelphia : P. Blakiston, Son, & Co., 1924.
12. Ant. Poncet et R. Leriche : “ Le rhumatisme tuberculeux.” Paris : O. Doin, 1909.
13. Emile Sergent : “ The Thyroid and Rheumatism,” *Mond Med.*, 1925. No. 35.
14. Joseph Hollós : “ Die Tuberkulöse Etiologie der Thyreosen,” *Zeitschr. fur Tuberkulosis*, 1914. Band 22, Heft 1.
15. James Craig Small : *The American Journal of the Medical Sciences*, 1927, Jan.
16. V. Hufnagel : “ Uber Schilddrüsenerkrankungen auf tuberkulöser Grundlage,” *Munch. med. Woch.*, 1912. No. 25.
17. F. Bialokur : “ Basedowsymptome als Zeichen Tuberkuloser Infection,” *Zeitschr. fur Tuberkulose*, 1910. Band 16. No. 6.

18. **Poenaru Caplescu**: "Zusammenhang Zwischen Tuberkulosis und Schilddruse." Spitalul, 1912. No. 14.

19. **L. Saathoff**: "Thyreose und Tuberculose," *Munch. med. Woch.*, 1913. No. 5.

20. **J. Hollós**: "A gümokoros intoxikátiok." Budapest: Franklin Tars, 1909.

21. **J. Hollós**: "Budapesti orvosi ujság," 1913. No. 23.

22. **Friedrich Weleminsky**: "Epilepsie und Tuberkulose," *Wiener klin. Woch.*, 1916. No. 39.

23. **G. C. Bolten**: "Über Genese und Behandlung der exudativen Paroxismen." Berlin: S. Karger, 1925.

24. **S. R. Kagan**: *American Journal of Klin. Medicine*, 1924.

25. **W. C. Parker**: "Endocrine Malfunction and Epilepsy: A Syndrome," *Illinois Med. Journal*, 1920.

26. **Jos. Hollós** und **Carl Eisenstein**: "Die tuberculose Etiologie der Dysmenorrhœ und ihre Behandlung mit Spengler's Tuberkulinpreparaten," *Gynækol. Rundschau*, 1907. No. 23.

27. **E. Grafenberg**: "Dysmenorrhœ und Tuberkulose," *Münch. med. Woch.*, 1910. No. 44.

28. **Jos. Hollós**: "Die Tuberkulose Etiologie der Menstruationstorungen," *Deutsch. med. Woch.*, 1912. No. 51.

29. **Gaston Cotte**: "Tuberculose inflammatoire: dysmenorrhée d'origine tuberculouse," *Gasette des Hopitaux*, 1909.

30. **Friedr. Weleminsky**: "Behandlung von Psoriasis mit Tuberkulomucin," *Wiener klin. Woch.*, 1909. No. 11.

31. **Klemperer**: "Uber die Dyspepsie der Phthisiker."

32. **G. Hirsch**: "Die Kurzsichtigkeit. Das Tuberkulin und Seine Anwendung." Halberstadt, 1922: Selbstverlag.

33. **Carl Spengler**: *Deutsch. med. Woch.*, 1908. No. 48.

34. **C. Spengler**: "Tuberculose und Syphilis Arbeiten." Davos: H. Ehrfurt, 910.

35. **Walter H. Fearis**: "Treatment of TB by means of Immune Substances." London: John Murray, 1912.

INDEX

ABDOMEN, enlarged, 120
— fluctuation in, 121
Acromegaly, 16
Adenoids, 102
Adolescence, disorders of, 17, 22
Albert, 37
Alcoholism, 8, 9, 68
Allergy, 111
Alpine lamp, 81
Amenorrhœa, 52, 75, 108, 112
Anæmia, 10
Aneurism, 126
Angina, 98, 102
Antitoxic effect of immune blood, 122
Appendix, chronic, 102
— pain in, 107
Appetite, lack of, 84, 88
Arthritis, 38, 41, 46
Articular rheumatism, 62
Asthenia, 25
Auricular bones, 38
Autonomic nervous system, 63

BACKACHE, due to tuberculosis, 97
Blushing, 32

CALCIUM metabolism, disturbance of, 15
Calmette, 4
Cardioarthritis, 41
Constipation, due to tuberculosis, 87, 89
Coryza, 33
Cyanosis of hands, 33

DEMENTIA præcox, 23, 24
Development, disturbance in, 15
Diabetes, 24, 26, 56
Diagnosis, early, 10
— specific, 11
Diarrhœa, due to tuberculosis, 87
Dosage, 123
Drooping of shoulder, 104
Dysmenorrhœa, 10, 50, 69, 71
Dyspnœa, 33, 34

ECZEMA, chronic, 80
Endocarditis, 41
Endocrine disturbance, 15, 32, 68, 71, 94
— function, 14, 108
— glands, 6
Endometrium, reaction in, 106
Endotoxin, 122
Epigastric pain, 30
Epilepsy, 65, 71
Erythema nodosum, 39
Exophthalmus, 40, 61
Eye changes, due to tuberculosis, 107

FATIGUE, 28
Foster, 23

GALL-BLADDER colic, 97, 98, 106
Ganglion, 43
Gastralgia, 93
Gastric symptoms, 84, 99
Genou reaction, 4
Glycosuria, 24, 59
Grafe's symptoms, 40

Graafian follicles, changes in, 23
Graves' disease, 40, 55, 57, 60, 61

Habitus phthisicus 16
Hæmoptysis, 108
Hallux valgus, 38
Hamburger, 2
Harvey, 116
Headache, 10, 93
Heart neurosis, 32
— regulating, 32
Hemicrania, 68, 93
Heterotoxin, 79
Hyperacidity, due to tuberculosis, 84
Hyperæmia, 122
Hypophysis, toxic action on, 16
Hysterectomy, 90
Hysteria, 28, 69

Immune blood, 13, 19, 117, 120, 121, 122
— — dilutions, 123
— — in childhood, 125
— — inunctions, 36
— — percutaneously, 124
Immune bodies 5, 8, 9
Immunity, hereditary, 7; natural, 8; acquired, 5
Infection, droplet and dust, 4
— extent of, 3
Insomnia, 29, 59
Irites, rheumatic, 39
Italians, tuberculosis in, 25
Izotoxin, 78

Jews, tuberculosis in, 25

Kidney, pain in, 13
Koch, Robert, 9

Leriche, 37
Leucorrhœa, 44, 45, 103, 104, 108
Liebermeister, 23, 38
Lumbago, 36
Lymph node, 119
Lymphocytes, 118
Lytic effect of immune blood, 120, 122
— reaction, 122

Mass treatment, 124
Measles, deleterious effect, 118
Menstrual disorders, due to tuberculosis, 72, 110
— — treatment by immune blood, 77
Mott, 23
Much's granules, 4
Muscular rheumatism, 47

Nasal catarrh, 106
Negroes, tuberculosis in, 26
Nervous symptoms, 6
Neuralgia, 50
Neurasthenia, 10, 27, 34, 53
Nose bleeding, 107

Obesity, 20
Ossicles, adhesion of, 106
Ovarian disturbance, 69
— hormones, 72
— tablets, 20, 22

Palpitation, 12, 31
Pantopon, 46
Parathyroids, 15
Periosteal thickening, 46
Perlsucht vaccine, 12
Petruschky, 125
Phagocytosis, 122
Pharynx, injection of, 98; sign of reaction, 102

Phlyctenula, 107
Pirquet, 2, 39, 46, 58
Polyarthritis, 42, 43, 46, 65
Polyglandular treatment, 71
Poncet and Leriche, 7, 38, 55, 60, 96, 101
Pottenger's sign, 20, 35, 66, 81, 84, 91, 100, 104, 109
Precordial pain, 31
Prognosis, 111
— unfavourable signs in, 112, 114
Psoriasis, 80
PTO, Perlsucht emulsion, 12, 30, 108
— — diagnostic injection of, 95
Puberty, 69

Rheumatic eye diseases, 38, 69
Rheumatism, 7, 37, 39
— in tuberculosis, 42, 53
— muscular, 47
Rhinitis, 106
Richter, 20, 21
Roepke, 118

Sacral pain, 109
Salvarsan, 127
Sergent, 39
Serous membranes, rheumatism of, 38
Serum in rheumatism, 41
Sex neurasthenia, 21
Sinusitis, 42
Spengler, 4, 11, 12, 116, 124, 126
Spinal curvature, 16
Streptococcus viridans, 48
Such, 23
Symptoms, gastrointestinal, 6; of intoxication, 13, 124
— nervous, 6; cure of, 11
— toxic, 83, 113
Synovial membranes, 37
Syphilis, 3

Tachycardia, 57
Testes, changes in, 23
Thymus, disturbance of, 80
Thyroid, diminished function of, 17, 48
— irritation, 6, 41, 61
Thyroidin, 18
Tonsils, 42
Toxic symptoms, 83
Treatment by immune blood, 13, 116, 119
Tubercle bacilli, entry of, 1
— — latent state, 1
— — virulence, 4
Tuberculin, ATO, 12, 31, 108
— percutaneously, 124
— test, 42
Tuberculo-mucin, 81
Tuberculosis, advanced, 121; latent, 3, 32, 126; concealed, 28
— concealed, 53, 95
— incipient, 84, 94
— peribronchial, 121
Tuberculous hypertrophy, 59, 70
— intoxication, 10, 12, 56, 60, 69, 100, 111
— neurasthenia, 53

Printed in Great Britain at The Darien Press, *Edinburgh.*

लाल बहादुर शास्त्री राष्ट्रीय प्रशासन अकादमी, पुस्तकालय
L.B.S. National Academy of Administration, Library
मसूरी
MUSSOORIE
यह पुस्तक निम्नांकित तारीख तक वापिस करनी है ।
This book is to be returned on the date last stamped

दिनांक Date	उधारकर्त्ता की संख्या Borrower's No.	दनांक Date	उध की संख्या Borrower's No.

GL 616.995
HOL
110729
LBSNAA

616.995
Hol

110729
अवाप्ति सं॰
ACC. No ~~11907~~ ......

वर्ग सं.
Class No............. . पुस्तक सं.
Book No.............

लेखक
Author... Hollos, J. ....

शीर्षक
Title.... Tuberculous in toxications.
....

निर्गम दिनांक Date of Issue	उधारकर्ता की सं. Borrower's No.	हस्ताक्षर Signature
....	....	....
....	....	....

~~11907~~

616.995
Hol

LIBRARY
LAL BAHADUR SHASTRI
National Academy of Administration
MUSSOORIE

Accession No. 110729

1. Books are issued for 15 days only but may have to be recalled earlier if urgently required.
2. An over-due charge of 25 Paise per day per volume will be charged.
3. Books may be renewed on request, at the discretion of the Librarian.
4. Periodicals, Rare and Reference books may not be issued and may be consulted only in the Library.
5. Books lost, defaced or injured in any way shall have to be replaced or its double price shall be paid by the borrower.

Help to keep this book fresh, clean & moving